Australian Bureau of Statistics

Stats NZ
Tatauranga Aotearoa

Australian Government
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MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

OUTCOMES PAPER

Australian and New Zealand Standard Research Classification Review 2019

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CONTENTS

Key Messages

- ANZSRC 2020 is the outcome of a collaborative review project between the Australian Bureau of Statistics, Stats NZ, Australian Research Council, and New Zealand Ministry of Business, Innovation and Employment. These bodies were supported by an Australian Expert Reference Group and New Zealand Expert Working Group.
- The review resulted in significant changes across the classification.
- There has been a high level of engagement from the Australian and New Zealand research communities throughout the two-year review process. The ANZSRC Review Steering Committee thanks all of the researchers, classification users and other participants who have given their time and expertise to the Review.
- New Divisions have been created for Indigenous research in both the Socio-Economic Objectives (SEO) and Fields of Research (FoR) classifications. Indigenous research has been a focus of this review involving significant engagement with Indigenous research communities in Australia and New Zealand. Indigenous research being classified appropriately will ensure that this important area of research is better recognised.
- Medical and Health Sciences has been divided into two more focused Divisions in the new FoR classification, and the Technology Division has been removed, in line with advice from researchers and users of the classification.
- The Sector level of the SEO classification has been removed to streamline the classification. Environment has been divided into two more focussed Divisions in the new SEO classification, also in line with advice from researchers and users of the classification.
- The outcome from this Review is the development of an updated, accurate statistical classification system with sufficient robustness to allow for long-term usage and implementation. The updated ANZSRC provides the research community with a classification that is contemporary and that reflects the changes in research practices over the past decade.

Section 1: Introduction

This paper provides information about the process undertaken for the review of the Australian New Zealand Standard Research Classification (ANZSRC), and the subsequent development of ANZSRC 2020. It also outlines the background, principles and consultation process for the review, and presents a summary of key changes between ANZSRC 2008 and ANZSRC 2020.

ANZSRC

ANZSRC is a set of three related classifications developed for use in the measurement and analysis of research and experimental development (R&D) undertaken in Australia and New Zealand. ANZSRC is used both in the public and private sectors. It allows the comparison of R&D data between sectors of the economy e.g. general government, private non-profit organisations, business enterprises and educational institutions.

ANZSRC was introduced to keep pace with contemporary research and to create a joint Australian and New Zealand classification for research and experimental development. ANZSRC was first published in 2008[1]. At that time, it was a new classification for New Zealand, while in Australia, it replaced the Australian Standard Research Classification (ASRC). ANZSRC has three main types of classification:

Type of Activity (ToA)

Four types of activity applicable to R&D are recognised: pure basic research, strategic basic research, applied research and experimental development.

Field of Research (FoR)

FoR is a classification for research activity according to the *methodology* used in the research, rather than the activity of the unit performing the research or the purpose of the research.

Socio-Economic Objective (SEO)

The SEO classification allows R&D activity to be categorised according to the intended *purpose* or *outcome* of the research, rather than the processes or techniques used.

The use of these classifications ensures that R&D statistics are useful to governments, educational institutions, international organisations, scientific, professional or business organisations, business enterprises, community groups and private individuals.

In New Zealand ANZSRC is used by government, funding agencies, Crown Research Institutes, universities, and independent research organisations, with the three related classifications utilised to varying degrees. Stats NZ uses SEO and ToA for the national Research and Development Survey, and international reporting compliance. The FoR is used by the Ministry of Business, Innovation and

[1] www.abs.gov.au > Statistics > Classifications > **Australian and New Zealand Standard Research Classification (ANZSRC) (2008)** > **CHAPTER 1** INTRODUCTION

Employment (MBIE), the Health Research Council, and the Royal Society of New Zealand to support funding decisions.

Similarly, in Australia ANZSRC is used by a wide variety of government, university and other stakeholders. The Australian Bureau of Statistics (ABS) uses ANZSRC in its R&D data collections and the Australian Research Council (ARC) uses FoR for its research funding processes, and the Excellence in Research for Australia (ERA), and Engagement and Impact (EI) research evaluation exercises, and SEO for reporting purposes.

In light of these dual Government uses of ANZSRC—as a statistical classification and a basis for evaluation—it is important that ANZSRC is structured in a way so as to support best practice in data reporting and management.

ANZSRC is also used nationally and internationally for a wide variety of applications by a range of government, education and industry stakeholders.

ANZSRC Review: scope and background

Announced in June 2018, the ANZSRC Review ('the Review') was carried out jointly by the ABS, Stats NZ, the ARC and New Zealand Ministry of Business Innovation and Employment. The aim of the Review was to ensure that ANZSRC reflects current practice and is sufficiently robust to allow for long-term data analysis.

The Review was guided by the ANZSRC Review Steering Committee, comprising representatives from the ABS, Stats NZ, ARC and MBIE. The role of the Steering Committee was to oversee the review, encourage implementation of the revised ANZSRC ('ANZSRC 2020'), and manage project governance. ANZSRC 2020 is endorsed by the Australian Statistician and New Zealand Government Statistician as joint custodians of the classification.

The Review was also advised by two groups: the Australian Expert Reference Group (ERG) and the New Zealand Working Group. Both groups included key internal and external stakeholders and were comprised of statistical and research classification experts. The groups provided technical advice and guidance and feedback on decision making principles and proposed changes. The membership lists of these groups are provided in Appendix 1.

A series of consultations were conducted with Australian and New Zealand stakeholders to support the Review. Further information on the consultation process is outlined in Section 3.

The scope of the Review has included all content of ANZSRC, including the overall structure, all levels of each classification, as well as specific categories contained within the ToA, FoR and SEO classifications. ANZSRC 2020 includes additional categories at all levels of the FoR and SEO classifications, as well as other categories that have been merged or split since ANZSRC 2008. Some research categories that were present in ANZSRC 2008 have been removed from ANZSRC 2020. Details on the changes between ANZSRC 2008 and ANZSRC 2020 are provided in section 5.

ANZSRC 2020 was published on 30 June 2020. The changes on the time series are mitigated through the availability of correspondence tables between ANZSRC 2008 and ANZSRC 2020.

Section 2: Principles for the Review

The framework and conceptual basis of ANZSRC has been strengthened to improve coverage, coherence and consistency. Significant improvements have been made to the classification's ability to capture emerging areas of research. The following principles, based on the United Nations *Best Practice Guidelines for Developing International Statistical Classification 2013,* have guided the ABS, Stats NZ, ARC and MBIE as part the Review:

Classification Structures

The FoR classification in ANZSRC 2020 has three hierarchical levels of increasing specificity, a structure which is unchanged from ANZSRC 2008. The three levels are Divisions, Groups and Fields, respectively indicated by two, four or six digit classification codes. Each Division is based on a broad discipline. Groups within each Division are those which share the same broad methodology, techniques and/or perspective as others in the Division. Each Group is a collection of related Fields.

The SEO classification in ANZSRC 2020 also has three hierarchical levels of increasing specificity: Divisions, Groups and Objectives, respectively indicated by two, four or six digit classification codes. The Sector level of the SEO classification which was present in ANZSRC 2008 has been removed from ANZSRC 2020 due to feedback that it was not utilised. Each Division is based on a broad research objective. Groups within each Division are those which are aligned towards the same objective as the Division. Each Group is a collection of related research Objectives.

The hierarchical structure of the FoR and SEO classifications allows analysis of data at multiple levels of aggregation. The ToA component of ANZSRC 2020 has remained as a flat classification, as there was no evidence to group ToA categories into more aggregate groups.

Mutual Exclusivity

Classifications categories should be unambiguous, with each unit of research fitting into one category of each component of the classification, without categories overlapping each other. Despite the level of significant change to ANZSRC 2020, extensive efforts have been made to ensure the classification upholds the rule of mutual exclusivity.

Interdisciplinary and multidisciplinary research by their very nature pose difficulties for any R&D classification. Stakeholder feedback was sought on how ANZSRC could be revised to better classify interdisciplinary and multidisciplinary research. The Review found that there was no viable solution that could be applied to the classification to resolve or avoid this issue. Feedback indicated that in most instances, allowing users to assign multiple codes to research data, or apportion research across multiple codes, is adequate to capture interdisciplinary and multidisciplinary research. This treatment allows users sufficient flexibility to code their research satisfactorily without overly complicating the structure of ANZSRC and without producing overlapping codes.

Exhaustiveness

Extensive efforts have been made to ensure that all research can fit somewhere in each of the classifications, and that there are no gaps in the classifications. A number of new and emerging research disciplines and research objectives have been identified as part of the Review, and these have been reflected in ANZSRC 2020, most notably in the FoR classification.

The following table shows the change in the number of each level of the FoR classification over each iteration of ANZSRC (which was previously known as ASRC).

FoR	1st level	2nd level	3rd level
1998 ASRC	24 divisions	139 disciplines	898 subjects
2008 ANZSRC	22 divisions	157 groups	1238 fields
2020 ANZSRC	23 divisions	213 groups	1967 fields

Similarly, the following table shows the change in the number of each level of the SEO classification over each iteration of ASRC/ANZSRC.

SEO	1st level	2nd level	3rd level	4th level
1998 ASRC	5 divisions	18 subdivisions	107 groups	594 classes
2008 ANZSRC	5 sectors	17 divisions	119 groups	847 objectives
2020 ANZSRC	-	19 divisions	128 groups	840 objectives

Statistical Feasibility

Efforts have also been made to improve the ability of users to effectively, accurately and consistently distinguish between categories of each classification on the basis of the research being classified. The addition of new categories at the 6-digit levels of FoR and SEO and improved definitions should assist users in classifying their research.

Time Series Comparability

Data classified under ANZSRC 2020 is comparable over time to data classified under the previous version of ANZSRC, noting some variability in the extent of comparability across the different Divisions, Groups and Fields/Objectives of FoR and SEO. Changes to ANZSRC have balanced the need to capture new and emerging research categories and the impact on time-series comparability of data sets. Correspondences will be published alongside ANZSRC 2020 to provide guidance on two-way mapping between ANZSRC 2008 and ANZSRC 2020.

Fit for purpose

The primary purpose of ANZSRC is for the ABS and StatsNZ to report R&D statistics collected from organisations engaged in R&D activities. The updates in ANZSRC 2020 will assist the ABS and StatsNZ to produce better quality R&D statistics to meet their national and international stakeholders' needs in terms of relevance and comparability.

It is recognised that, for non-statistical uses of ANZSRC, there is a need for a classification which reflects current research practices, methodologies and objectives. One of the aims of the Review was to meet this need with an updated ANZSRC and build in sufficient robustness to allow for long-term usage.

Section 3: Review process and consultation

The joint partners in the Review have been committed to undertaking a transparent process with multiple opportunities for public participation. In addition to public consultation, targeted consultations were conducted to actively seek advice and input from stakeholders including:

- universities and their research offices
- discipline peak bodies
- users of ANZSRC-coded data such as researchers and government agencies
- businesses that engage in data services or that use relevant classification systems.

The development of ANZSRC 2020 was guided by the review principles outlined in Section 2. In addition, revisions to the classification have been developed using a set of decision-making principles that are set out below. This set of principles was agreed to by the ANZSRC Steering Committee, Australian ERG and New Zealand EWG in the early stages of the Review. A summary of the stages of the review process and consultation phases is below.

Discussion Paper and initial public consultation

The *ANZSRC Review Discussion Paper* was released on 25 February 2019, with 237 submissions received in response. The initial public consultation reflected high levels of participation from stakeholders and resulted in more than 2,500 individual suggestions for changes to ANZSRC.

In addition to the responses to the Discussion Paper, a range of ongoing public consultations with discipline experts, peak bodies, government agencies and other individuals and organisations was conducted.

Development of Consultation Draft and Decision-making Principles

All suggested changes to ANZSRC were extracted from submissions, collated and consolidated by Division (for FoR and SEO). The consolidated Division-based lists allowed for recognition of where multiple submissions agreed or disagreed on particular changes. All submissions were considered for inclusion in the *ANZSRC Review Consultation Draft*.

In general, suggestions were incorporated without further analysis where:

- There were no competing suggestions or a strong majority view existed among submissions
- The change was of low complexity and not expected to be controversial with stakeholders and,
- The suggestion was consistent with the Review principles (as outlined in section 2).

Where these conditions were not met, further analysis was undertaken. Multiple factors were considered in determining whether, or how, to incorporate submissions into the draft. The Australian ERG and New Zealand EWG recommended the following decision-making principles, in order of greatest to least priority:

1. Views from or support of representative groups of experts such as academies, deans' councils, royal societies and other discipline peak bodies.
2. Evidence of community of practice. Evidence that proposed changes reflect the way that researchers organise themselves and regard their work, such as the existence of research

groups, institutes, associations or conferences dedicated to a topic—and alignment with international research practices were also highly regarded sources of evidence in support of particular proposals.

3. Level of impact within the ANZSRC structure.
4. Alignment with international practices and standards.
5. Evidence of alignment of expertise.
6. Bibliographic analysis / volume. These were used sparingly and generally did not strongly influence the decision-making process.

Consultation Draft release and review of responses

The *ANZSRC Review Consultation Draft* was published on 29 November 2019. At this stage, the Review sought feedback on whether the drafted classifications accurately captured the Australian and New Zealand research landscape, and whether any errors or ambiguities had been introduced in the drafting process. Some 238 submissions were received in response, and in general, there was broad support for the revised draft. Submissions had been requested to respond in the context of disciplinary research practice and the multiple uses of ANZSRC, rather than any particular use case (for example, impacts on grant assessment or university data collection).

The Review sought feedback mainly in the form of comments against specific codes in spreadsheet versions of the revised classification. There were more than 3,500 individual comments in this spreadsheet format which covered all existing and proposed Field of Research (FoR) Divisions and all major proposed revisions to Socio-Economic Objectives (SEO). No responses to the Consultation Draft specifically addressed the Type of Activity (ToA) classification. Similar to the previous round of consultation, all suggested changes to ANZSRC were extracted from submissions, collated and consolidated by Division (for FoR and SEO).

All submissions received to the Consultation Draft were reviewed and assessed in close detail. Actions recommended were consistent with the ANZSRC Review decision-making principles outlined above. This resulted in the creation, deletion or renaming of a significant number of Groups and Fields/Objectives, and the reversion of some of the Group and Field/Objective-level changes that were proposed in the Consultation Draft.

Finalising ANZSRC 2020

Additional consultation was required with relevant peak bodies to finalise the technical detail of the classification, including explanatory material, Group and Division definitions, and correspondence tables. Advice was also sought on appropriate naming or location of identified Fields/Objectives and Groups. Where this process identified minor issues or errors with the classification, any amendments to remedy these were consistent with the principles that guided the development of ANZSRC 2020.

Further targeted consultation with Aboriginal and Torres Strait Islander research peak bodies was undertaken to finalise details of the new Indigenous Divisions in the FoR and SEO classifications, including the consolidation of the number of Groups and Fields/Objectives. MBIE and Stats NZ approached relevant Māori and Pacific research experts to finalise the respective elements of the classification, including use of te reo Māori. Further detail on the new Indigenous Divisions in ANZSRC 2020 is provided in section 4.

The Australian ERG and New Zealand EWG provided advice on the revisions to the ANZSRC Steering Committee prior to endorsement of the revisions.

Section 4: Indigenous research

In ANZSRC 2008, Indigenous research is mostly captured at the lowest level of FoR and SEO (6-digit) and dispersed across multiple Divisions (2-digit). Recognising the potential need to capture Indigenous research collectively, the 2008 structure offered an alternative groupings list which pools the codes for Indigenous research into separate groupings. The Review sought feedback as to whether these alternative groupings were sufficient and appropriate for users to classify and analyse Indigenous research.

Following a range of consultation with Indigenous researchers and peak bodies in Australia and New Zealand, new Divisions have been created for Indigenous studies in the FoR classification and Indigenous in the SEO classification. The new Divisions include a range of subset codes for Aboriginal and Torres Strait Islander, Māori, Pacific Peoples and other Indigenous that better represent the scope and breadth of this area of research, and their objectives. Section 4 outlines the consultation undertaken in Australia and New Zealand, and provides a summary of the review's key findings for Indigenous studies FoR and SEO.

Consultation

Given the importance of this topic to a wide range of stakeholders, extensive consultation was undertaken in Australia and New Zealand. Two rounds of consultation were conducted, both of which included public and targeted consultation. From February to October 2019, the first round of consultation gathered general feedback from stakeholders and investigated various options that had been suggested for Indigenous research. This shaped the Consultation Draft that was published in November 2019 along with a paper summarising the key findings and evidence from the first round of consultation on Indigenous research. The second round of consultation was held from November 2019 to April 2020 that sought to refine the draft, particularly drawing on the guidance of peak bodies and experts.

In Australia, targeted consultation was conducted with Aboriginal and Torres Strait Islander research discipline experts and peak bodies throughout the review. Activities included a national workshop, discipline-based webinars and consultation on discussion papers and draft classifications. All feedback on Indigenous research from the two public consultations was also considered. More than 300 Aboriginal and Torres Strait Islander research stakeholders were invited to participate in one or more of these avenues for feedback.

Similarly, in New Zealand, there were two rounds of public consultation. In addition, ongoing targeted engagement was undertaken, to work through an iterative process enabling Māori and Pacific Peoples research to be more visible in the ANZSRC classifications. Feedback and advice was received from a range of interested stakeholders including Māori and Pacific Peoples discipline experts, research organisations and key funding agencies. Over 75 researchers and research organisations were invited to participate in one or more of the avenues for feedback.

Key Findings

Decisions on the final outcomes for the new Indigenous Divisions were made on the basis of the ANZSRC Review decision-making principles that prioritise the views of discipline experts to those of universities or other stakeholders. The outcome reflects the extensive consultations undertaken and acknowledges the diversity of views that were presented on Indigenous research through both rounds of consultation in Australia and New Zealand.

Feedback and options

From the initial round of consultations in Australia and New Zealand, there was a clear and consistent message that there was a lack of visibility, and therefore recognition, of Indigenous research within ANZSRC 2008. This has negatively affected the ability of government, universities and other users of ANZSRC to report and analyse data.

To address the lack of visibility, feedback centred around three main options:

- Option 1: Promotion of existing Fields (6-digit) to Groups (4-digit), additional codes at both levels and a list of alternative grouping of these new codes
- Option 2: Creation of a new Division for Indigenous Research with cross referencing to other Divisions
- Option 3: Creation of new Division for Indigenous Research.

The review investigated the three options and conducted further consultation. There was strong feedback and evidence that Indigenous research is a unique knowledge domain and the ANZSRC 2008 codes under-represented the scope of research. This meant that option 1 would not adequately recognise the knowledge domain or represent the range of research. There was strong support from Indigenous researchers across Australia and New Zealand to create a new Division. Understanding that Aboriginal and Torres Strait Islander researchers preferred Option 2, the review investigated cross referencing but found it not to be feasible for the ANZSRC 2020.

Subsequently, the Consultation Draft proposed the creation of new Indigenous Divisions, as suggested in option 3, for the FoR and SEO classifications. The draft structure created a FoR Division with 67 Groups—22 Groups each for Aboriginal and Torres Strait Islander, Māori and Pacific Peoples, and an ‘Other’. A large number of 6-digit FoR, suggested through feedback, were included. The draft structure created an SEO Division with 13 Groups.

Refining the draft

As with other Divisions, the second round of consultation sought more technical feedback on the proposed draft including accuracy of the codes, definitions and exclusions. Overall, there was continued broad support from a variety of stakeholders for the new Indigenous Division. Technical feedback was also provided through this stage which enabled the Division to be refined for accuracy and clarity. Additionally, all codes for Māori research include te reo Māori and English translations.

As a newly proposed FoR Division, Indigenous studies did not have an established definition. Therefore, some submissions expressed confusion about the intended use of the proposed Indigenous Divisions, regarding whether they are intended to capture all research undertaken by researchers who are Indigenous, and whether non-Indigenous people would be able to classify research in the Divisions. ANZSRC 2020 includes specific explanatory material to clarify that the FoR

Division Indigenous studies should be applied to the subject of the research, not the identity of the researcher. This is consistent with the overall ANZSRC methodology. A definition for the Indigenous studies FoR Division was developed with input from Indigenous researchers in Australia and New Zealand that reflects this understanding and provides a common understanding. The intent of the Division is to make visible in research the knowledges and methodologies unique to Indigenous peoples and capture research activity that is significantly about or involves them.

The high number of FoR Groups (67) proposed in the Consultation Draft was raised as a technical issue by various stakeholders. There was concern that the Groups may not have sufficient data to conduct meaningful analysis. If this were to occur, then Indigenous research would continue to lack visibility for all practical purposes. To address this issue, the 67 FoR Groups were consolidated to 20 FoR Groups—6 each for Aboriginal and Torres Strait Islander, Māori and Pacific Peoples, one to capture broader Indigenous data, methodologies and global studies, and an 'Other'. The consolidation was agreed through consultation with Indigenous peak bodies and experts in Australia and New Zealand. The number of Groups proposed for the SEO Indigenous Division remained at 13.

Some submissions expressed concern that research relating to Indigenous topics or peoples could only be classified under the new Division which might distance a researcher from another main discipline, such as health or archaeology. As with multidisciplinary and interdisciplinary research, and research conducted in a range of other disciplines, in most instances, allowing users to assign multiple codes to research data, or apportion research across multiple codes, provides sufficient flexibility to capture research that spans more than one discipline.

Since the Consultation Draft, the new Indigenous studies FoR Division has been refined. A definition, exclusions and explanatory material are now included to provide clarity for users of the codes. The number of FoR Groups has been consolidated to ensure meaningful analysis can be done, thereby meeting the intent of increasing the visibility of Indigenous research. The new Division is a significant change from the 2008 classification and overall has the broadest support from a range of Indigenous and non-Indigenous stakeholders in Australia and New Zealand.

Section 5: Comparing ANZSRC 2020 and ANZSRC 2008

Highlights of the significant differences between ANZSRC 2020 and ANZSRC 2008 are outlined below.

Field of Research

A large number of changes have been made to the FoR classification at all levels. All Divisions, Groups and Fields have been re-ordered in alphabetical order. To avoid confusion between the 2008 and 2020 iterations of the classification, FoR Divisions are ordered from 30 in ANZSRC 2020. This may also help prevent the technical issues noted by some users when classification codes have numbering with a leading zero.

Under ANZSRC 2008, there was a Division for Technology. This Division no longer exists under ANZSRC 2020, with research categories moving to other Divisions.

The ANZSRC 2020 FoR Divisions and highlights of changes from 2008 are:

- 30 Agricultural, veterinary and food sciences: This Division is predominately derived from the old 07 Agricultural and Veterinary Sciences. Groups 'Food sciences' and 'Agricultural biotechnology' have moved here (from 09 Engineering and 10 Technology respectively).

- 31 Biological sciences: This Division is derived from the old 06 Biological Sciences. The Group 'Industrial biotechnology' has been moved from the old 10 Technology.
- 32 Biomedical and clinical sciences. This is a new Division split from the old 11 Medical and Health Sciences. The Group 'Medical biotechnology' has been moved from the old 10 Technology.
- 33 Built environment and design: This Division is derived from the old 12 Built Environment and Design. Most changes in this Division involved renaming of existing Groups and Fields.
- 34 Chemical sciences: This Division is derived from the old 03 Chemical Sciences. Most changes in this Division are at the Field level.
- 35 Commerce, management, tourism and services: This Division is derived from the old 15 Commerce, Management, Tourism and Services. The existing Group 'Business and Management' has been split into three new groups: 'Human resources and industrial relations', 'Strategy, management and organisational behaviour' and 'Business systems in context'.
- 36 Creative arts and writing: This Division is derived from the old 19 Studies in Creative Arts and Writing. Many existing Groups and Fields within the Division were restructured and renamed.
- 37 Earth sciences: This Division is derived from the old 04 Earth Sciences and includes three new Groups: 'Climate change science', 'Geoinformatics' and 'Hydrology'.
- 38 Economics: This Division is derived from the old 14 Economics and has not had significant change at the Group level.
- 39 Education: This Division is derived from the old 13 Education. A new Group has been added for 'Education policy, sociology and philosophy'.
- 40 Engineering: This Division is derived from the old 09 Engineering and has had a major restructure. A number of new Groups have been created and 'Communications engineering' and 'Nanotechnology' have been derived from Groups in the old 10 Technology. The Group 'Food sciences' has moved to Division 30 Agricultural, veterinary and food sciences.
- 41 Environmental sciences: This Division is derived from the old 05 Environmental Sciences. The Group 'Environmental biotechnology' has been moved from the old 10 Technology. New Groups have been added for 'Climate change impacts and adaptation' and 'Pollution and contamination'.
- 42 Health sciences: This is a new Division split from the old 11 Medical and Health Sciences. Some Groups have been renamed or restructured and there are new Groups for 'Allied health and rehabilitation science', 'Epidemiology', and 'Midwifery'.
- 43 History, heritage and archaeology: This Division is derived from the old 21 History and Archaeology. The existing Group 'Curatorial and Related Studies' has been renamed 'Heritage, archive and museum studies'.
- 44 Human society: This Division is derived from the old 16 Studies in Human Society. There are new Groups for 'Development studies' and 'Gender studies'.
- 45 Indigenous studies: As outlined in section 4, this is a new Division. Almost all previous FoR codes related to Indigenous research were at the Field level only.
- 46 Information and computing sciences: This Division has been significantly restructured to reflect current practice, with multiple changes at Group and Field level.
- 47 Language, communication and culture: This Division is derived from the old 20 Language, Communication and Culture.

- 48 Law and legal studies: This Division is derived from the old 18 Law and Legal Studies but has been extensively re-worked into a number of new Groups.
- 49 Mathematical sciences: This Division is derived from the old 01 Mathematical Sciences. All changes in this Division are at the Field level.
- 50 Philosophy and religious studies: This Division is derived from the old 22 Philosophy and Religious Studies'. It contains a new Group: 'Theology'.
- 51 Physical sciences: This Division is derived from the old 02 Physical Sciences and has had a significant restructure.
- 52 Psychology: This Division is derived from the old 17 Psychology and Cognitive Sciences but has been significantly restructured into a number of new Groups.

Socio-Economic Objectives

A number of changes have also been made to the SEO classification at all levels. All Divisions, Groups and Objectives have been re-ordered in alphabetical order. To avoid confusion between the 2008 and 2020 iterations of the classification, SEO Divisions are renumbered from 10 in ANZSRC 2020.

The ANZSRC 2020 SEO Divisions and highlights of changes from 2008 are:

- 10 Animal production: This Division is based on the old 83 Animal Production. There are minimal updates to this Division.
- 11 Commercial services and tourism: This Division is based on the old 90 Commercial Services and Tourism. There are minimal updates to this Division.
- 12 Construction: This Division is based on the old 87 Construction. There are some minor changes at the Objective level.
- 13 Culture and society: This Division is based on the old 95 Cultural Understanding. Changes have been applied across the existing Groups and Objectives, including splitting the Groups 'Religion and Ethics' and 'Arts and Leisure' into four new Groups.
- 14 Defence: This is a small Division and based on the old 81 Defence.
- 15 Economic framework: This Division is based on the old 91 Economic Framework. There are minimal updates to this Division.
- 16 Education and training: This Division is based on the old 93 Education and Training. There are multiple merges and changes at the Group and Objective level.
- 17 Energy: This Division is derived from the old 85 Energy. Some Groups have been updated to reflect current terminology.
- 18 Environmental management: This is a new Division split from the old 96 Environment. This reflects the part of environmental research that is directed towards understanding the management of and improvement of the physical environment.
- 19 Environmental policy, climate change and natural hazards: This is a new Division split from the old 96 Environment. This reflects the part of environmental research that is directed towards understanding the impact of climate change. It also includes studies of natural hazards and the development of environmental policy.
- 20 Health: This Division is derived from the old 92 Health. Some Groups have been updated to reflect current terminology. There is significant change within the Clinical Health group to better represent current Objectives in this research area.

- 21 Indigenous: As outlined in section 4, this is a new Division. All previous SEO objectives related to Indigenous research were at the Objective level only.
- 22 Information and communication services: This Division is based on the old 89 Information and Communication Services. To reflect more current terminology, many Groups and Objectives have been restructured and renamed.
- 23 Law, politics and community services: This Division is based on the old 94 Law, Politics and Community Services. There are multiple merges and changes at the Group and Objective level.
- 24 Manufacturing: This Division is based on the old 86 Manufacturing. The Groups 'Computer Hardware and Electronic Equipment' and 'Communication Equipment' have been merged into a single Group 'Computer, electronic and communication equipment.'
- 25 Mineral resources (excl. energy resources): This Division is based on the old 84 Mineral Resources. There are minimal updates to this Division.
- 26 Plant production: This Division is based on the old 82 Plant Production. The Groups 'Summer Grains and Oilseeds' and 'Winter Grains and Oilseeds' have been merged into a single Group 'Grains and seeds.'
- 27 Transport: This Division is derived from the old 88 Transport. There are minimal updates to this Division.
- 28 Expanding knowledge: This Division is similar to the previous 97 Expanding Knowledge, and will be continued to be used to capture R&D which contributes to the general advancement of knowledge.

Type of Activity

Following a review of the submissions received as part of the first round of public consultation, and more targeted stakeholder consultation, the ToA categories remain unchanged in content, but their respective definitions have been updated to align with the *OECD Frascati Manual* ToA classification.

The outcome is that the definitions of Applied Research and Experimental Development mirror those in the *Frascati Manual*. The definitions for Pure Basic Research and Strategic Basic Research have been updated to reflect language from the *Frascati Manual* and clarify that the union of these two categories is identical to the *Frascati* Basic Research classification.

Overall the feedback received noted that the ToA component of the classification was adequate, and the split into four categories (as opposed to the three categories in the *Frascati Manual*) is relevant and useful for a granular view of the nature of the research classified.

Appendix 1: Expert Working/Reference Group Memberships

The members of the Australian Expert Reference Group are:

- Ms Sarah Howard, Branch Manager, Research Excellence, Australian Research Council (Chair)
- Ms Helen Baird, Director, Standards and Classifications, Australian Bureau of Statistics
- Dr Sophie Biesenbender, Researcher, German Centre for Higher Education Research and Science Studies (DZHW)
- Mr Rowan Brownlee, Data Specialist, Australian Research Data Commons Ltd (ARDC)
- Ms Ariadne Legendre, Senior Data Analyst, Social Sciences and Humanities Research Council of Canada
- Mr Duncan Loxton, Data Curator, Scholarly Communication, University of Technology Sydney
- Ms Carolyn Shrives, Branch Manager, Research Policy & Programs, Department of Education
- Mr David Turvey (2018–19), A/g Head of Division & Chief Economist, Analysis and Insights, Department of Industry, Innovation and Science
- Dr Abrie Swaenpoel (2020), A/g General Manager, Insights and Evaluation, Department of Industry, Science, Energy and Resources
- Ms Sue-Ellen Luke, Director, Technology Innovation and Business Characteristics Statistics, Australian Bureau of Statistics

The members of the New Zealand Expert Working Group are:

- Andrew Hancock, Principal Analyst, Data Standards and Design, Stats NZ (Chair)
- Alan Grey, Manager, Research & Evaluation, NIWA (National Institute of Water and Atmospheric Research)
- Deborah Fitchett, Head of Department: Digital Services, Learning, Teaching and Library, Lincoln University
- Dr Donna Hendry, PBRF & Publications Manager, Otago University
- Dr Elspeth MacRae, Chief Innovation & Science Officer, Scion Research
- Dr Fernanda da Silva Tatley, MBIE Fund Specialist, Otago University
- Dr Jason Gush, Programme Manager, Insights & Evaluation / ORCID, Royal Society Te Apārangi
- Karen Hayes (2018–2019), Research Bidding and Contracts Advisor, GNS Science
- Dr Lloyd Donaldson, Senior Scientist, Plant Anatomy and Microscopy, Scion Research
- Rachael Hanna, Senior Business Analyst, Science System Investment & Performance, Ministry of Business, Innovation and Employment
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