MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
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Research, Science & Innovation Data: Conceptual Model

Draft for consultation

New Zealand Government

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Introduction

In 2015, the government launched the National Statement of Science Investment (NSSI) which set out a ten-year strategic direction for New Zealand's science system.

It outlined the government's vision for the science system for 2025 of "a highly dynamic science system that enriches New Zealand, making a more visible, measurable contribution to our productivity and wellbeing through excellent science".

Improvement in data collection and management will lead to more evidence-based policies, improve transparency and visibility of the science system, and reduce transaction costs for researchers through the reuse of data and application of common standards.

The Research, Science and Innovation Domain Plan (the Domain Plan) was released in September 2016 and set out the broad vision and direction for science and innovation data in New Zealand. The Plan represents a commitment from government agencies to improve coordination of data and information through a set of 27 staged actions over the next five years.

In support of this vision, several actions in the domain plan called for common data standards across funding agencies and the research community. These related to the profiling and classification of research projects, end user data, domestic and international collaborations, subcontracting, outputs and knowledge exchange activities.

This document sets out a draft conceptual model for research, science and innovation (RS&I) data in New Zealand. The model creates a conceptual framework and starts the process of defining a common set of definitions of concepts and data elements, accompanied by guidance for use. A preliminary indication of whether a data element is mandatory, conditionally mandatory or optional is included. Potential data sources are also indicated. We expect these to contain further technical detail in later stages when integrated into National Research Information System (NRIS).

MBIE has led the development of this model, working closely with New Zealand's key RS&I agencies through a co-design approach. Funding agencies and the research community have collaborated to identify this draft model and associated entities, definitions and elements through meetings and workshops.

MBIE now invites individual researchers, scientists, research organisations, scientific institutes, peak bodies, funding agencies, government entities, non-profit organisations and the business sector to provide comments on this document by 14 April 2017. Please send feedback to NRIS@mbie.govt.nz.

MBIE will work with other government agencies and the research community to incorporate the feedback received and improve on this draft. The first version of the data model for RS&I in New Zealand is expected to be released in mid-2017.

It is expected that adoption and implementation of this model and associated elements and definitions will take some time to be reflected in contractual arrangements, application forms, reporting frameworks and operational systems.

Consultation Questions

While reviewing this document, please consider the following questions:

1. The document contains a high-level conceptual model of New Zealand's research, science and innovation system which illustrates core entities and concepts (see page 13). How well do you think the model represents the system at a high-level?
2. The final document will likely contain use cases. An example of a use case might be showing how National Science Challenges fit the high-level conceptual model. What particular use cases would you like to see in the final document?
3. Page 14 contains a conceptual model illustrating core entities and identified data elements. Are there particular data elements missing from the model? If so, what are they?
4. Bearing in mind current reporting requirements for particular funds, do you consider particular data elements are not needed? If so, what are they?
5. Chapter One provides definitions of the key concepts for the model. How could these definitions be improved?
6. Chapter Two contains definitions and reasons for each identified data element. How could these be made clearer?
7. Chapter Three provides draft code sets specifically developed for the conceptual model. How could the code sets be improved?
8. What are your views on the use of unique identifiers, such as New Zealand Business Numbers (NZBNs) and ORCIDs? Note that state sector entities, incorporated societies and charitable trusts will be able to have NZBNs in 2017.

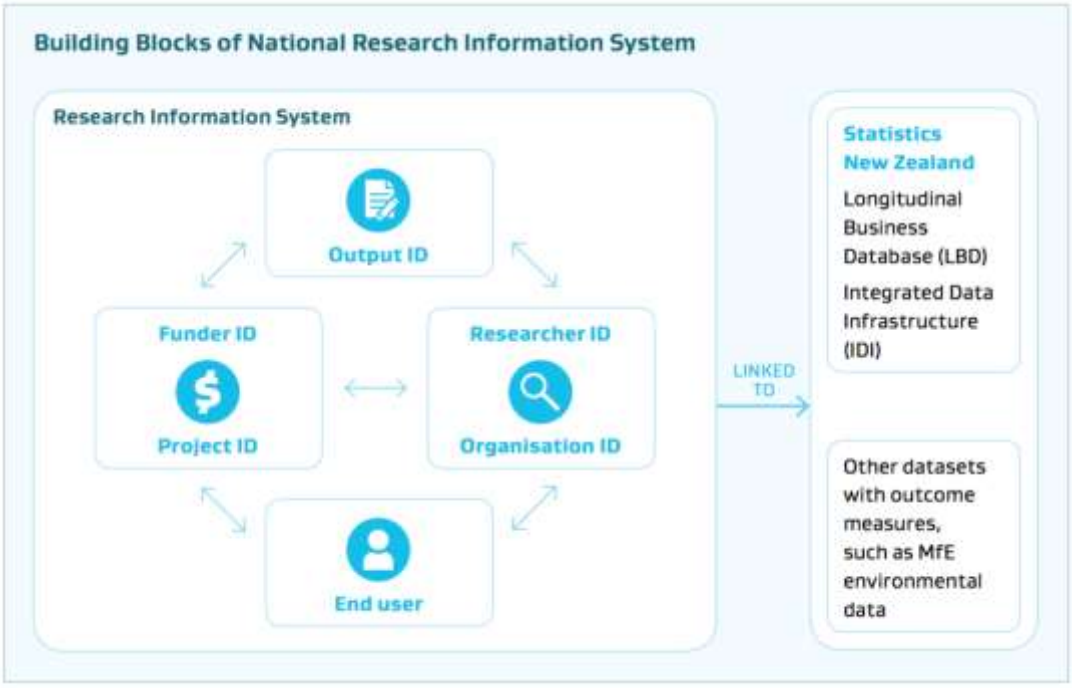
Overview

Genesis

Information and data on New Zealand's innovation system has suffered from a lack of oversight and coordination for many years. This has led to problems with data integrity, data structure and standardisation, reporting capability and data validity.

The Research, Science and Innovation Domain Plan, published in September 2016, set out the vision and strategic direction for improving data on research, science and innovation in New Zealand. The domain plan represented a commitment from government agencies to improve coordination of data and information, and to lay the framework for a system-wide data infrastructure.

The domain plan contained a vision to build a National Research Information System (NRIS) with the ability to link data on researchers, their projects, outputs, funding sources and end user collaboration.

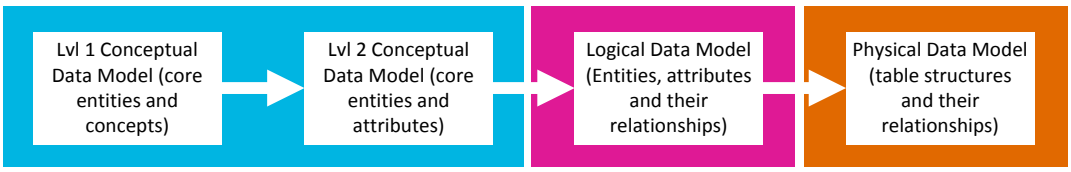


In support of this vision, several actions[1] in the domain plan called for common data standards across funding agencies and the research community. These related to the profiling and classification of research projects, end user data, domestic and international collaborations, subcontracting, outputs and knowledge exchange activities.

Purpose

This model creates a conceptual framework for the RS&I system in New Zealand. It starts the process of defining a common set of definitions for concepts and data elements, accompanied by guidance for use. We expect these to contain further technical detail in later stages when integrated into NRIS (refer to the pink and orange boxes in the figure on the following page).

[1] Namely actions 4, 6, 7 and 8. Future iterations of the model will address additional actions such as 9, 10, 21 and 22.



This model forms the basis for improving data quality, reusability and interoperability across New Zealand's RS&I system. Implementation of the model's agreed definitions, elements and code sets will:

- assist collaborations
- enable aggregation of data and comparability across different parts of the system
- increase efficiencies
- reduce transaction costs.

It is expected that contractual arrangements, application processes, reporting frameworks and operational systems will reflect this conceptual model over time. It is recognised that implementation will require some system changes, ideally coinciding with system upgrades.

Organisations that implement this model and elements to a satisfactory level, and that establish organisational data feeds into NRIS, will no longer be required to produce data reports for each fund/grant to MBIE and other participating funding agencies. That is, in principle, fund-specific data reports will be eliminated.

Scope and application

This conceptual model is for RS&I in New Zealand. It relates to administrative data about the RS&I system. They do not relate to management of research data, ie the data that researchers create and use in the course of their research.[2]

The model applies to five broad concepts. Each is outlined in the table below. The project type code set (see page 58) contains further details on each.

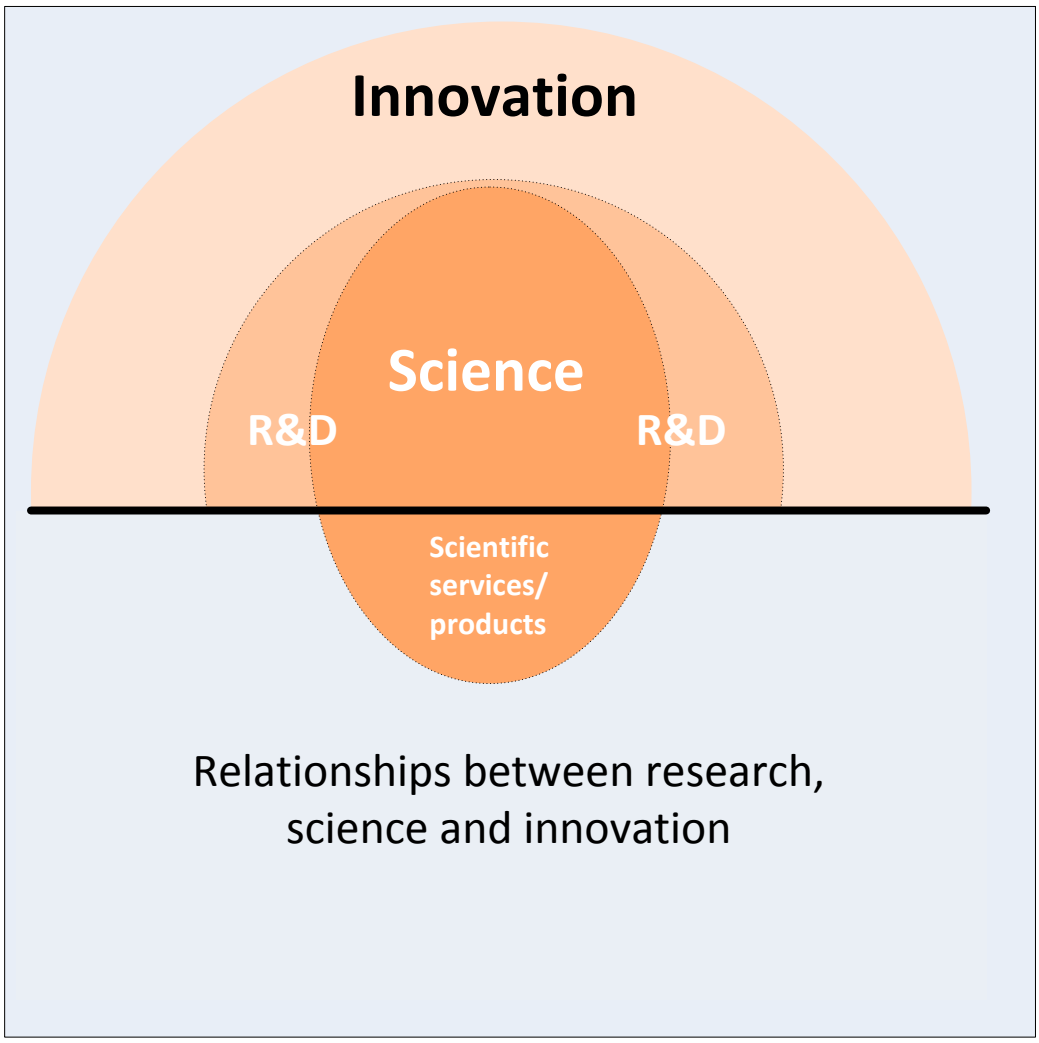
Concepts	Definition
Frascati R&D	Creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society. For an activity to be an R&D activity it must be novel, creative, uncertain, systematic and transferable and/or reproducible. This definition is sourced directly from the OECD's Frascati Manual (2015). Note that all R&D activities are innovation activities.
Non-R&D Innovation	Non-R&D activities aimed at the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method. This definition is based on the Oslo Manual 2005, but modified to reflect non-business innovation.
Scientific Services and Products	Non-R&D activities and outputs based on a scientific process. These activities do not meet the five criteria of R&D. This includes monitoring and data management, curation of collections, laboratory analysis, field surveys, expert advice and

[2] The exception is where a research dataset comprises a research output. In this case, metadata associated with the dataset forms part of the outputs entity in this model.

	assessment, and selling of products.
Knowledge Transfer, Outreach and Extension	The diffusion, dissemination and application of knowledge, including through community engagement and outreach activities.
Commercialisation	Activities involved in the process of taking an RS&I output to market, such as activities aimed at intellectual property protection.

The scope of this model does not extend to industry and business development programmes, or to activities that are uniquely related to higher education.

The visual representation below shows the relationship between research, science and innovation. Innovation is the largest concept which includes all R&D activities. Many R&D activities occur in the sciences, but R&D also includes research in the arts and humanities. Some science is not R&D, such as laboratory analysis, scientific monitoring and data management that are not part of R&D projects. This work can, however, underpin many R&D and innovation activities; hence they are included in the scope of this model.



Relationships between research, science and innovation

This model is intended to apply broadly to:

1. All RS&I activities funded in whole or in part by the New Zealand government
2. All RS&I activities performed in New Zealand state sector organisations, such as Crown Research Institutes, Universities and Callaghan Innovation.
3. Other organisations may wish to adopt the model and associated definitions and elements on a voluntary basis.

Each data element is specified as being mandatory, conditionally mandatory or optional. Mandatory elements are required for all government funds and all activities performed in state sector organisations. Conditionally mandatory elements are required dependent on a particular business rule. For instance, project Vote and appropriation data is only required for those projects awarded with government funding. Optional elements may be supplied if provider organisations wish to do so in order to enhance visibility of RS&I activities.

Development process

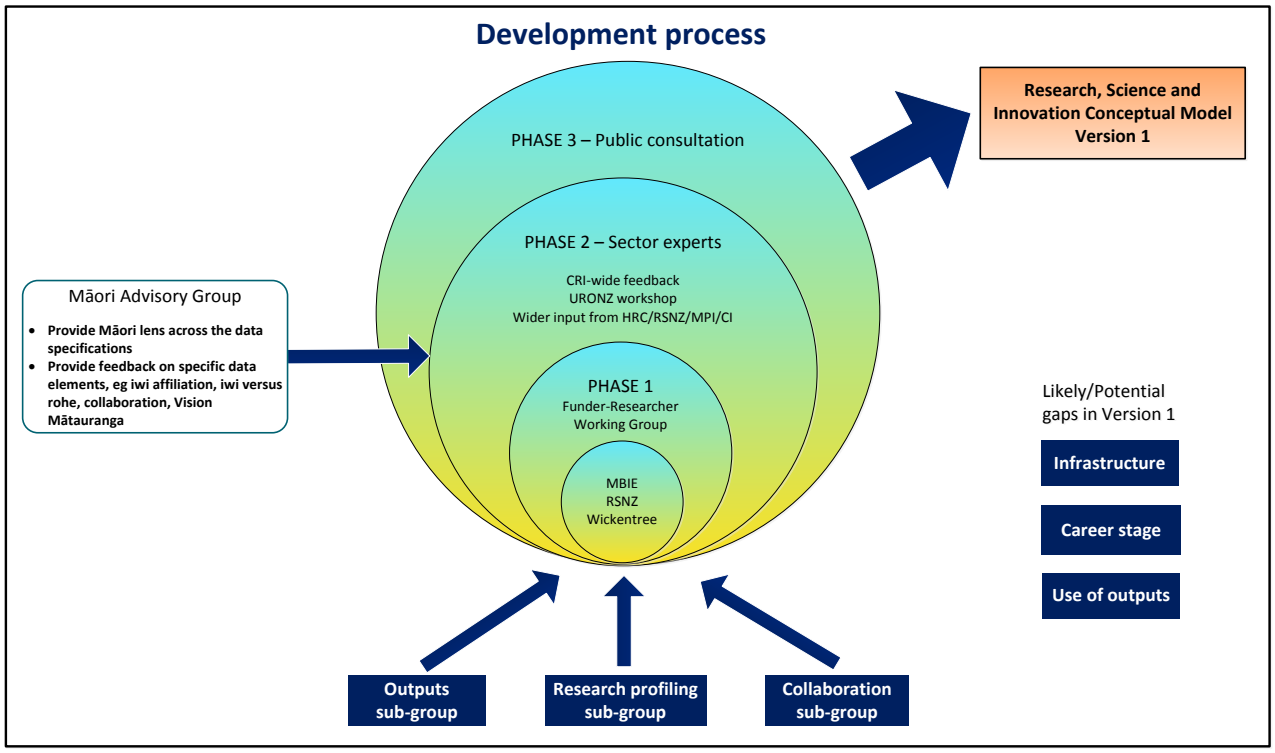
A cross-sector working group[3] has developed this data model and associated definitions and elements. Work began in February 2016 with sub-groups formed to work on particular areas: research profiling, collaboration and outputs. The products of these sub-groups formed the basis of this document.

Administrators and experts from the research and science community tested and provided feedback on an initial version in December 2016 and January 2017.

MBIE is also forming a Māori advisory group to provide expert input from across the Māori research sector. The group will provide feedback on the conceptual model and its alignment with diverse Māori research practices. The group is expected to provide advice on identified data elements relating to end user collaborators, researcher ethnicity and iwi affiliation, and output types.

A first version of this conceptual model is expected to be produced by the middle of 2017. The version will also contain various use cases to illustrate key concepts and data elements.

Future iterations of the conceptual model will be developed as needs arise. A cross-sector working group, convened by MBIE, is expected to work on future versions.



This work draws from international standards, definitions, taxonomies and classifications as much as possible. It also draws heavily on official Statistics New Zealand standards and codes. As a rule, the working group only developed new definitions and classifications when there were no existing published options or those that were available were inadequate.

[3] The Research, Science and Innovation Data Funder-Researcher Working Group comprises representatives from MBIE, the Ministry of Education, the Tertiary Education Commission, the Ministry for Primary Industries, Callaghan Innovation, the Health Research Council, the Royal Society of New Zealand, the Universities, Crown Research Institutes and the Independent Research Association of New Zealand.

The *Common European Research Information Format (CERIF)* model provided a useful starting point for drawing up the conceptual model and data elements. The model presented here is an adaptation of the CERIF framework to fit the New Zealand context and to ensure traceability of funding with links to projects, people, infrastructure and outputs.

This effort in New Zealand to agree on common concepts, definitions and elements has drawn inspiration from developments internationally. CASRAI[4] has been working with the research community on common ontologies and data dictionaries for some time. European countries have been working for up to two decades on standardising research information systems and some have developed national-level data systems.

[4] CASRAI (Consortia Advancing Standards in Research Administration Information) is an international non-profit initiative led by research institutions and their partners. The mission of CASRAI is to adapt the principles and best practices of open standards and data governance. Their vision is for all stakeholders (institutions, funders, publishers and software providers) to adopt the resulting 'invisible infrastructure' in their local software and processes.

1. Core Concepts

The model presented here builds on the framework contained in the Research, Science and Innovation Domain Plan. That framework incorporated features of the linear model of innovation and the systems approach to innovation. The framework showed the inputs, outputs and outcomes of the innovation system and the key connections and feedback loops in the system.

The core concepts that are reflected in this draft model are applications, funders, primary awards, co-funding awards, projects, end user collaborators, national infrastructure, researchers and outputs. The following table explains each term.

Core concept	Definition	Source/derivation
Application	A proposal that seeks funding and/or resources from a funder for a coherent program of RS&I.	Derived from elements of guidance notes from various funding councils, including RSNZ, NIH and EPSRC.
Funder	Any entity, either a government or non-government organisation, that funds RS&I activities	
Primary Award	The allocation of resources by a funder to support research, science and innovation activities, that is the subject of a contractual agreement. A primary award may support one or more projects; may be for a fellowship or scholarship; or may specifically support infrastructure. A primary award sets the requirements for the award holder.	
Co-funding Award	An award, providing direct cash and/or in-kind contributions, to support achieving the requirements of a primary award.	
Project	A set of activities that: Has a discrete allocation of funding that is linked to one primary award and may be supported by one or more co-funding awards Is organised and managed for a specific purpose Has its own objectives Has expected outputs and outcomes Occurs over a specific period with defined start and end dates. An *R&D* project should have a named lead researcher and be able to be profiled by five or fewer 6-digit	Derived from elements of the following three definitions of a project contained in the Frascati Manual, CASRAI data dictionary and CERIF model.

	ANZSRC FOR and SEO codes. An R&D project may have one or more research organisations participating and it may be established by a subcontract or statement of work.	
End user	A stakeholder that is likely to use the research and who will benefit directly from it. An end user may be an organisation, a business, a sector, or a community group including iwi/Māori. An end user may be involved in defining the research questions and shaping the work, not just involved in the uptake of its findings.	Endeavour Fund Applicant Guidelines for Completing a Proposal
Collaboration	Active participation in joint R&D and innovation projects with other organisations but excludes pure contracting out of work. It can involve the joint development of new products, processes or other innovations with customers and suppliers as well as horizontal work with other enterprises or public research organisations.	OECD Science, Technology and Industry Scoreboard 2011, p. 104
End user collaborator	An end user engaged in a collaborative project.	
National infrastructure	To be determined as part of the Research Infrastructure Roadmap project.	
Researcher	A professional engaged in the conception or creation of new knowledge. They conduct research and improve or develop concepts, theories, models, techniques, instrumentation, software or operational methods.	Frascati Manual 5.35
Output	Goods or services generated from RS&I activities.	

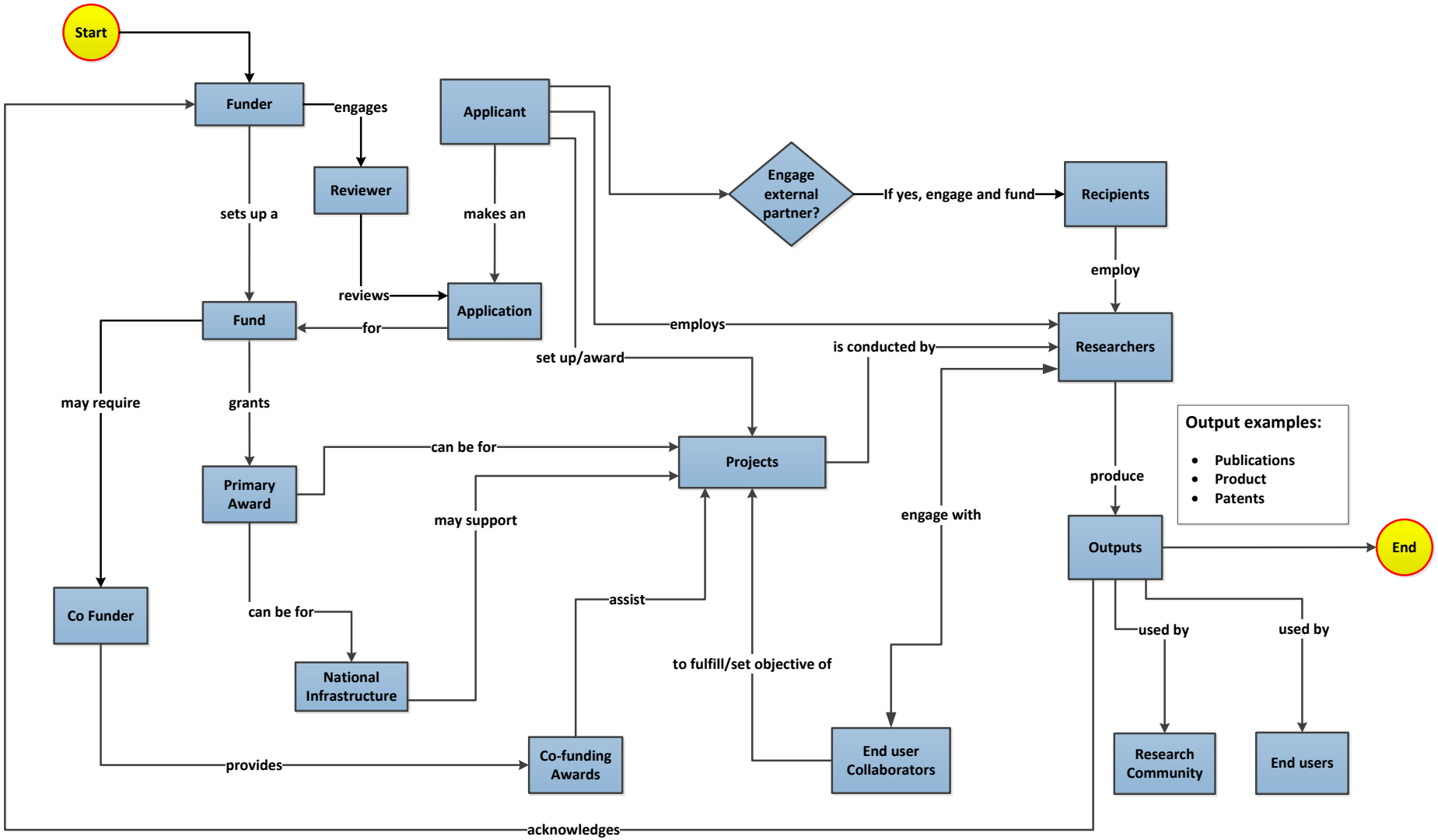
Both the award and project are important concepts in the model. Some awards, such as National Science Challenges (NSCs), Centres of Research Excellence (CoREs) and Strategic Science Investment Fund (SSIF) Platforms fund multiple projects. Other awards, such as Marsden grants, Rutherford Fellowships and HRC Project grants, fund only one project.

This model allows for only *one* primary award to fund a project. Such awards come with specific contractual obligations and reporting requirements. Allowing more than one primary award to fund a project does not allow for clear links between funding sources, projects, researchers and their outputs. If more than one primary award were allowed, reporting to funding agencies could not be automated. One project may be supported by one or more co-funding awards. These awards support the requirements of the primary award.

The following diagrams show the conceptual models developed.

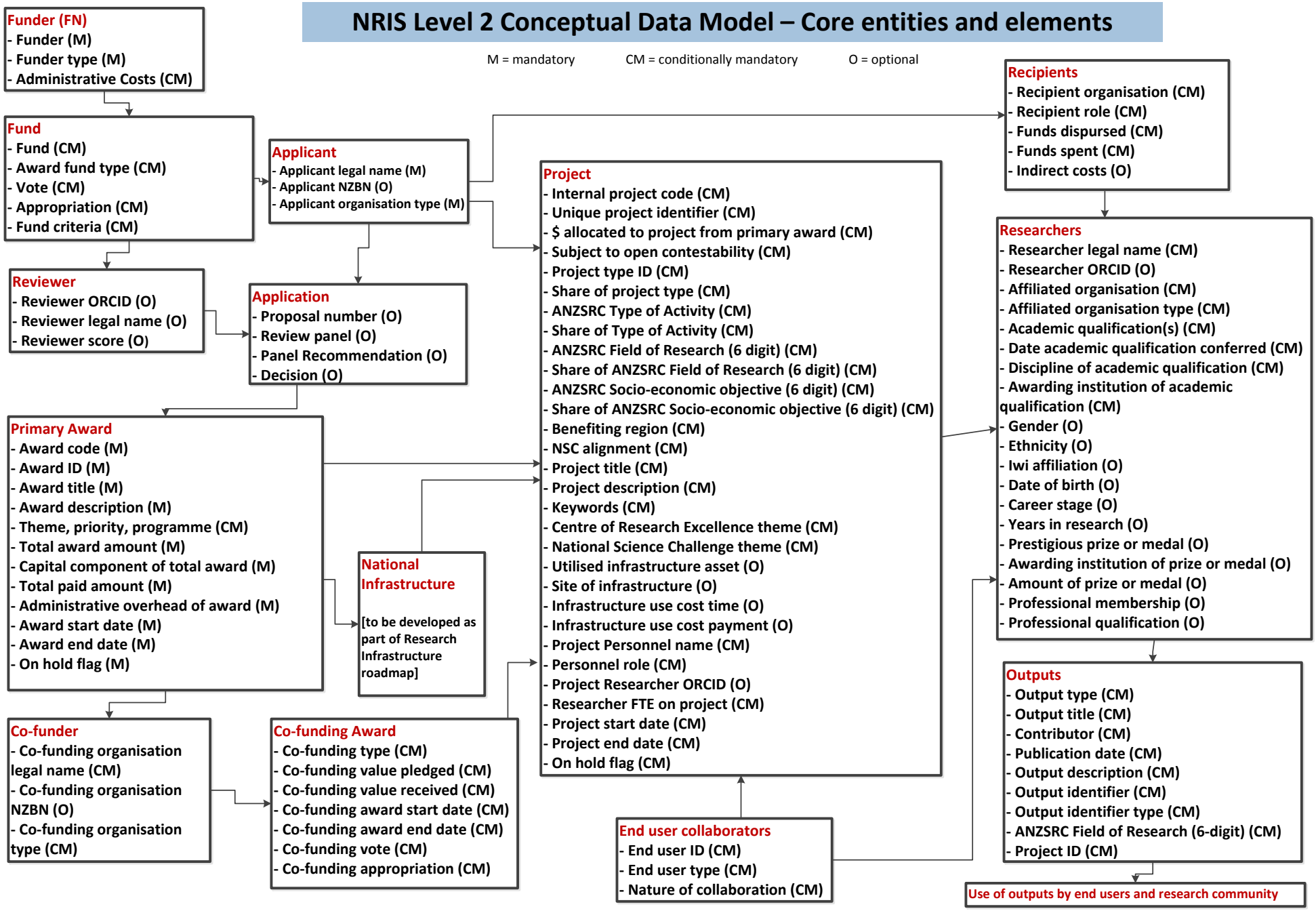
- The level one diagram shows the core entities and concepts.
- The level two diagram shows the core entities and identified elements.

NRIS Level 1 Conceptual Data Model – Core entities and concepts



NRIS Level 2 Conceptual Data Model – Core entities and elements

M = mandatory CM = conditionally mandatory O = optional



2. Entities and identified elements

The Level 2 Conceptual Model represented the entities and identified elements of the model. This section provides details on the identified elements and key attributes for each. Through the course of further development of the model and of NRIS, it is likely that further specification of elements will be needed. Where an element can be derived via calculation or by using existing elements, it has been excluded.

The section provides definitions and reasons for collecting each element. It also provides comments on each element, a preliminary indication of whether the information is mandatory, and an indication of the likely source of the data.

Each data element has been defined according to a set of attributes that are based on ISO Standard 11179 Information Technology – Specification and standardization of data elements, 2003. These attributes, set out in the table below, describe the essential nature of each data element. As the model and elements are further developed in NRIS, they will become more detailed.

Term	Description / Guidance for completing
Item	A letter-number identifier for an element. The identifier is unique across the entire data specification. Whole numbers (1, 2, etc) are used for elements. Subelements are identified as fractions of the whole number (1.1, 1.2, 1.3, etc).
Name	The name of the element.
Definition	A statement that expresses the essential nature of the element and its differentiation from all other elements.
Reason	Details of why the element is necessary.
Comments	Additional guidance to inform the use of the element.
Obligation	An indicator of whether the element is mandatory (M), conditionally mandatory (CM) or optional (O).

2.1. Funder

A funder is any entity, either a government or non-government organisation, that funds research, science and innovation activities.

It is likely that this information will come from government funding agencies. Where the funder is not a government funding agency, the information will come from research providers, such as Universities and Crown Research Institutes.

The data elements for funder are mandatory, except for the administrative costs element, which is mandatory for government funding agencies

Item	Name	Definition	Reason	Comment	Obligation
FN1	Funder	The organisation providing the award	To understand the sources of investment in RS&I	Funder also refers to non-government organisations that fund projects within the RS&I system.	M
FN2	Funder Type	The entity type of the funder	To analyse funding sources of the RS&I system by various categories	See Code Set Organisation Type for proposed classification.	M
FN3	Administrative Costs	Costs incurred by the entity in administering its RS&I funding and activities	To track the efficiencies of the RS&I system	This includes Research Contract Management Costs provided to the Royal Society of New Zealand and the Health Research Council.	CM

2.2. Fund

A fund is a sum of money made available for a particular purpose.

It is likely that this information will come from government funding agencies. Where the funder is not a government funding agency, the information will come from research providers, such as Universities and Crown Research Institutes.

The data elements for fund are mandatory only for government funds (ie they are conditionally mandatory).

Item	Name	Definition	Reason	Comment	Obligation
F1	Fund	The name or title of the fund or scheme from which the award is allocated	To understand the investments of each fund	Funds only refer to specific funds set up fund RS&I activities.	CM
F2	Award Fund Type	The mechanism by which the fund allocates funding	To understand the balance of funding by mechanism within the system and the effects of each mechanism	See Code Set Fund Type for proposed classification	CM
F3	Vote	A grouping of one or more appropriations that are the responsibility of one or more Ministers of the Crown and are administered by one department	To capture the original source of government funding		CM
F4	Appropriation	The appropriation from which the fund receives funding	To link awards back to appropriations and therefore the effects of funding of each appropriation	.	CM
F6	Fund Criteria	Criteria against which applications to the fund are assessed	To link reviewer scores to each criterion		CM

2.3. Applicant

An applicant is the organisation or individual submitting an application to a fund.

It is likely that this information will come from government funding agencies. Where the funder is not a government funding agency, the information will come from research providers, such as Universities and Crown Research Institutes.

The data elements for applicant organisation are mandatory, with the exception of the element for the New Zealand Business Number (NZBN).[5]

Item	Name	Definition	Reason	Comments	Obligation
AO1	Applicant Legal Name	The legal name of organisation applying for (and in cases of successful applications) receiving the award from the funder	To track the recipient organisations of awards when NZBN has not been supplied.		M
AO2	Applicant NZBN	The NZBN of the organisation applying for (and in cases of successful applications) receiving the award from the funder	To track the recipient organisations of awards	See NZBN. The award holder will be specified in the contractual agreement with the funder. The award holder must be a legal entity.	O
AO3	Applicant Organisation Type	The type of organisation contracted to deliver the project	To understand the relative allocation and effort across the system by type of organisation	See proposed Code Set Organisation Type	M

Note: there is likely to be additional information relevant to the Applicant Organisation (eg Address, Organisation Structure, etc).

[5] In 2017, all businesses in New Zealand will be able to have NZBNs. This includes State sector entities, incorporated societies, charitable trusts, limited partnerships and unincorporated entities such as sole traders. See https://www.nzbn.govt.nz.

2.4. Application

An application refers to a proposal that seeks funding and/or resources from a funder for a coherent program of RS&I activities. All data elements for this entity only apply to public funds and all data elements are optional.

It is likely that funding agencies will be the most appropriate source for this information.

Item	Name	Definition	Reason	Comments	Obligation
N1	Proposal Number	The number assigned to the application by the funding agency	To link application data with other data, such as award and output data		O
N2	Review Panel	The name of the panel reviewing the application	To assess application demand by disciplines and the efficiencies and effectiveness of panels		O
N3	Panel Recommendation	The recommendation of the panel on whether to fund the application or not.	To assess efficiencies and effectiveness of panels; can be used for identifying counterfactuals; needed to identify which applications are deemed to be fundable		O
N4	Decision	The decision of the funding agency to fund an application	To identify which applications are actually funded		O

2.5. Reviewer

A reviewer is an individual engaged by a funder to assess the quality of applications.

It is likely that this information will come from government funding agencies. It is not applicable for non-government funding.

The data elements for reviewer are optional.

Item	Name	Definition	Reason	Comments	Obligation
W1	Reviewer ORCiD	The ORCID identifier of the reviewer	To enable recognition of reviewers' efforts and potentially to use for analysis of relationships between a reviewer's scores, the reviewer and the applicants		O
W2	Reviewer Legal Name	The name of the reviewer	To enable recognition of reviewers' efforts and potentially to use for analysis of relationships between a reviewer's scores, the reviewer and the applicants		O
W3	Reviewer Score	The score(s) a reviewer gives an application	To analyse the relationships between a reviewer's scores, the reviewer and the applicants		O

2.6. Primary Award

A primary award is the allocation of resources by a funder to support research, science and innovation activities, that is the subject of a contractual agreement. A primary award may support one or more projects; may be for a fellowship or scholarship; or may specifically support infrastructure. A primary award sets the requirements for the award holder.

It is likely that funding agencies will be the most appropriate source for this information, with the exception of privately funded awards. In that case research organisations will likely be the most appropriate source.

These elements are mandatory.

Item	Name	Definition	Reason	Comment	Obligation
PA1	Internal Award Code	Code that identifies a specific award within one institution	To establish the criteria for a project and link projects to funding sources	The award is established by an agreement which can be an external contract or an internal memo. Award number should be unique at the funder level, including across time. The award code is typically a contract number.	M
PA2	Unique Award Identifier	A universally unique identifier for the award constructed by combining Funder, Fund, and Award Code	To have a unique identifier for an award so that all projects can be linked back to original funding sources		M
PA3	Award Title	The short headline description of the award	To communicate the nature of the award	The title for the award and any of its projects can be the same. The title should be as appears in the contractual agreement.	M

PA4	Award Description	The brief description of the award that is understandable by an informed but non-specialist reader	To understand what the award is about, what the award seeks to achieve, and enable search functionality	This may be the description of the expected outcomes of the award or, in the case of an award funding a single project, the project's description	M
PA5	Theme, Priority or Programme	Funder-specific strategic research theme, priority or programme which the award supports	To capture contributions of awards to specific themes, priorities or programmes		CM
PA6	Total Award Amount	Total amount allocated to the award by the funder at the time of receiving the award	To capture the overall dollar value awarded at the time the award is made	Expressed in New Zealand dollars and exclusive of GST.	M
PA7	Capital component of total award	The dollar value of the total award amount that is allocated to capital expenditure	To allow for a separation of operating and capital expenditures	Should be less than total award amount and represent situations where part of the award is for capital expenditure (eg infrastructure).	M
PA8	Total Paid Amount	Sum disbursed to date from the funder to the award holder	To understand the amounts actually paid at any given time during the course of the award		M
PA9	Administrative overhead of award	The budgeted costs of administering the award	To monitor administration costs and hence efficiencies	This is obtained from the initial budget or proposal, or the contract. In the case of National Science Challenges, this is limited to 5% of the award amount.	M
PA10	Award Start Date	Start date as indicated in award agreement or most recent variation	To understand when financial contributions to the system are made	Start date as stated in contract / award agreement.	M

PA11	Award End Date	End date as indicated in award agreement or most recent variation	To understand when financial contributions to the system are made	End date as stated in contract / award agreement.	M
PA12	On Hold Flag	A flag to indicate an award is on hold	To track and control for awards that are on hold.	On hold means that the award has temporarily ceased by agreement of parties. This could indicate situations where the principal investigator is on maternity leave, sabbatical, etc.	M

2.7. Co-funder

A co-funder is an organisation providing a co-funding award.

It is likely that this information will come from research provider organisations.

Co-funder information is only mandatory when the primary award is from a government funder and there is a co-funding award (ie it is conditionally mandatory). The NZBN element is optional.

Item	Name	Definition	Reason	Comments	Obligation
C1	Co-funding organisation Legal Name	The legal name of organisation providing the co-funding	To demonstrate demand for the project and where the demand is from		CM
C2	Co-funding organisation NZBN	Organisation providing the co-funding	To demonstrate demand for the project and where the demand is from	Use the unique identifier for the organisation providing the co-funding (NZBN). A co-funding agreement must specify organisation.	O
C3	Co-funding organisation Type	The type of organisation providing co-funding	To demonstrate demand for the project and where the demand is from	See proposed Code Set Organisation Type	CM

Note: there is likely to be additional information relevant to the Lead Research Organisation (eg Address, Organisation Structure, etc).

2.8. Co-funding Award

A co-funding award is an award, providing direct cash and/or in-kind contributions, to support achieving the requirements of a primary award.

Co-funding Award information is only mandatory when the primary award is from a government funder and there is a co-funding award (ie it is conditionally mandatory).

Item	Name	Definition	Reason	Comments	Obligation
CA1	Co-funding type	The type of co-funding support pledged or received	To capture the various types of co-funding supporting the project. Some types of co-funding indicate collaboration	See Code Set Co-funding	CM
CA2	Co-funding value pledged	Value of pledged co-funding	To demonstrate pledged support for the project	Agreement must specify contribution to particular project.	CM
CA3	Co-funding value received	Value of received co-funding	To demonstrate actual financial support for the project	Agreement must specify contribution to particular project	CM
CA4	Co-funding award start date	Start date as indicated in co-funding agreement or most recent variation	To understand when financial contributions to the system are made		CM
CA5	Co-funding award end date	End date as indicated in co-funding agreement or most recent variation	To understand when financial contributions to the system are made		CM
CA6	Co-funding Vote	A grouping of one or more appropriations that are the responsibility of one or more Ministers of the Crown and are	To capture co-funding support from each government Vote	Only relevant when the co-funder is a government entity	CM

		administered by one department.			
CA7	Co-funding Appropriation	The appropriation from which the fund receives funding.	To capture co-funding support from each government Appropriation	Only relevant when the co-funder is a government entity	CM

2.9. National Infrastructure

Data elements for national infrastructure will be developed during the Research Infrastructure Roadmap exercise. Nationally significant infrastructure includes research technology, facilities, collections, databases and support services. It may include infrastructure that is not hosted in New Zealand, but to which the New Zealand government contributes.

The following elements may be included in the national infrastructure entity:

- Name of national infrastructure
- Host institution
- Initial capital cost
- Annual capital improvements
- Annual depreciation charges
- Annual operating costs
- Annual maintenance costs
- Asset life expectancy.

Version 2 of this model will contain data elements for this entity.

2.10. Projects

A project is a set of activities that:

- Has a discrete allocation of funding that is linked to one primary award and may be supported by one or more co-funding awards
- Is organised and managed for a specific purpose
- Has its own objectives
- Has expected outputs and outcomes
- Occurs over a specific period with defined standard and end dates.

An R&D project should have a named lead researcher and be able to be profiled by five or fewer 6-digit ANZSRC FOR and SEO codes.

An R&D project may have one or more research organisations participating and it may be established by a subcontract or statement of work.

An R&D project includes doctoral and research master's theses.

It is likely that research and science organisations will be the most appropriate source for this information. However, for some funding mechanisms, most of the data elements will be contained in the application form and associated contract.

These elements are mandatory for projects wholly or partly funded by the New Zealand Government, with the exception of Callaghan Innovation Business R&D Growth grants. For all other projects, these elements are optional. Elements related to the use of infrastructure are optional.

Item	Name	Definition	Reason	Comments	Obligation
P1	Internal Project Code	Code that identifies a specific project within one institution.	Needed to generate the system-wide unique project identifier	This code represents the internal code an institution generates for each project within their research management systems.	CM
P2	Unique Project Identifier	A system-wide unique identifier of a project.	A universally unique identifier to link the project to other data elements, including	This code is generated by the LEAD organisation for the project, and is fed through all organisations associated with	CM

			sub-recipient funding and outputs	the project. Proposed structure is a concatenation of the award ID, the lead organisation's org code, plus their internal project code.	
P3	$ Allocated to Project from Primary Award	Total amount allocated to the project budget from the primary award	To capture the allocations from the primary award to a discrete project. Allocations indicate expected effort toward a particular set of objectives.	Project and Award may be one and the same, such as for Marsden grants, HRC project grants and Endeavour Fund Smart Ideas. NSCs, CoREs and SSIF platforms fund multiple projects. Dollars expressed in NZ$ and exclusive of GST.	CM
P4	Subject to open contestability	Project funding allocated on the basis of an open competition	To calculate the extent of contestability of funding across the system	Open contest must be open to all research organisations in New Zealand. Examples of contestable projects would be where the fund type of the award funding the project is contestable, or where the project is won competitively through contestable rounds within primary awards (eg CoREs and NSCs).	CM Applies only to R&D projects
P5	Project Type	Project activities classified according to one of five types	To understand the balance of effort within the system on R&D and related activities	See Code Set Project Type for proposed classification. Select up to five project types based on the overall intention or focus of the project at the outset of the project. Most projects will fall into only one project type.	CM
P5.1	Share of project	Estimate of the proportion of	To understand the level of resources	Shares across all project types should	CM

	type	total project funds spent on identified project type	devoted to different project types	sum to one for a project.	
P6	ANZSRC Type of Activity	The Type of Activity according to the ANZSRC over the life of the project	To understand the level of resources devoted to the different Types of Activity. These are important when designing policy and investment parameters	See ANZSRC classification. This is determined by the overall intention or focus of the project at its outset. In general, a project will fall under one Type of Activity, but in some instances projects may fall under more than one Type of Activity.	CM Applies only to R&D projects
P6.1	Share of ANZSRC Type of Activity	Estimate of the proportion of each Type of Activity code within each project	To derive the level of resources devoted to the different Types of Activity	Shares across all Type of Activity responses should sum to one for a project.	CM
P7	ANZSRC Field of Research (6 digit)	The field of research according to the ANZSRC over the life of the project	To capture the scope and reach of the project according to the 6 digit FoR classification. Input measures by FoR are needed to understand the balance of investments by field of research, identify collaboration opportunities, and to link inputs and outputs by fields of research	See ANZSRC classification. This is determined by the overall intention or focus of the project at its outset. Proposed that up to five ANZSRCs FoR can be recorded and a percentage allocated to each.	CM Applies only to R&D projects
P7.1	Share of ANZSRC Field of Research (6 digit)	Estimate of the proportion of each Field of Research code within each project	To derive the level of resources devoted to the different Fields of Reseach	Shares across all FoR responses should sum to one for a project.	CM Applies only to R&D projects

P8	ANZSRC Socio-Economic Objective (6 digit)	The socio-economic objective of the project according to the ANZSRC over the life of the project	To capture the scope and reach of the project according to the 6 digit SEO classification. Input data by SEO is needed to demonstrate effort in particular areas. SEO classifications can provide an indication of expected end users	See ANZSRC classification. Determined by the overall intention or focus of the project at its outset. Proposed that up to five ANZSRCs SEO can be recorded and a percentage allocated to each	CM Applies only to R&D projects
P8.1	Share of ANZSRC Socio-Economic Objective (6 digit)	Estimate of the proportion of each Socio-Economic Objective code within each project	To derive the level of resources devoted to the different Socioeconomic objectives	Shares across all SEOs responses should sum to one for a project.	CM Applies only to R&D projects
P9	Benefiting Region	The specific NZ region(s) and Pacific realm countries that the project will benefit	To understand expected end users of the project at the regional level	See proposed Code Set Benefiting Region Only applicable when there is a specific region(s) that is expected to benefit from the project. Region is limited to NZ regions and the Pacific realm countries. This is not designed to capture where the project team is based.	CM Applies only to R&D and innovation projects
P10	NSC Alignment	Where the project addresses a topic or topics of relevance to one or more NSCs when the project itself is not part of the NSC	To capture total spend and effort on research of relevance to NSC objectives	An R&D project is aligned to a National Science Challenge if it meets all of the following criteria: 1. The research will contribute to progress on the Challenge's objectives 2. There is an agreement or acknowledgement by the project	CM Applies only to R&D projects

				host organisation that the research is aligned 3. There is no direct Challenge funding going to the project 4. The Challenge does not direct or manage the project	
P11	Project Title	The short headline description of the project	To communicate the nature of the project and enable semantic searches	The title for the award and the project can be the same. The contract should be the primary source and should take primacy if multiple sources are available.	CM
P12	Project Description	The brief description of the project that is understandable by an informed but non-specialist reader	To understand what the project is about and enable semantic analysis	Project description should be understandable by an informed but non-specialist reader. Technical terms should be avoided. The description will, in general, be made public.	CM
P13	Keywords	The keyword(s) that describe topics and/or themes of significance to the project	To enable search analyses of projects and groups of projects into various portfolios	Descriptive keywords of the project. Keywords may be scientific terms.	CM
P14	Centre of Research Excellence Theme	Flagship themes or programme streams within each CoRE	To capture total spend and effort on research of relevance to CoRE themes	See Code Set Centre of Research Excellence Theme. This only applies to projects that are funded by a CoRE.	CM Applies only to projects funded by a CoRE
P15	National Science Challenge Theme	Flagship Themes or programme streams within each NSC	To capture total spend and effort on research of relevance to NSC themes	See Code Set National Science Challenge Theme.This only applies to projects that are funded by a NSC.	CM Applies only to projects

					funded by a NSC
P16	Utilised infrastructure asset	The identifier of the nationally significant infrastructure asset	To monitor the stock of nationally significant infrastructure assets.		O
P16.1	Site of infrastructure	The site the asset was used	To monitor where infrastructure is being used		O
P16.2	Infrastructure use cost time	The duration of time the infrastructure asset was used in the project	To monitor the demand for infrastructure		O
P16.3	Infrastructure use cost payment	The financial cost of using the infrastructure asset for the project	To monitor the demand for infrastructure		O
P17	Project Personnel Name	The legal name of the researcher	To link researchers with their outputs and other projects they are involved in.		CM Applies only to R&D projects
P17.1	Personnel Role	The role of an individual associated with the project	To capture the roles associated with each project	See proposed Code Set Personnel Roles	CM Applies only to R&D projects
P17.2	Project Researcher	The ORCiD Identifier of the researcher associated with the	To link researchers with their outputs and other projects they are involved in.	Only required for research personnel	O

	ORCID	project.			
P17.3	Researcher FTE on Project	The budgeted funds associated with a researcher on the project	To understand the overall effort within projects and across the system	Only required for research personnel	CM Applies only to R&D projects
P18	Project Start Date	The start date for the project according to the relevant agreement between the parties or most recent variation.	To capture the starting dates for projects. Projects need to be time-bound to link inputs and outputs	The agreement can be an internal statement of work or memorandum for internal projects	CM
P19	Project End Date	The end date for the project according to the relevant agreement between the parties or most recent variation.	To capture the expected duration of the project (when combined with the project start date)	The date on which the contract is due to end and date that the project activities cease will normally be one and the same	CM
P20	On Hold Flag	A flag to indicate a project is on hold	To track and control for projects that are on hold.	On hold means that the project activities have temporarily ceased by agreement of parties. This could indicate situations where the principal investigator is on maternity leave, sabbatical, etc.	CM

2.11. Recipients

These elements refer to distribution of funds to the lead organisation of a project and further distributions to sub-recipient organisations. Data elements also cover expenditure. The distribution of funding applies to the total budget of the project, not to the individual awards making up the budget.

These elements are mandatory for projects wholly or partly funded by the New Zealand Government. For projects solely funded by non-government sources, these elements are optional. The data element on indirect costs is optional.

Item	Name	Definition	Reason	Comment	Obligation
S1	Recipient Organisation	An identifier for the organisation participating in the project	To monitor and report on expenditure of public money	An identifier for each organisation involved in the project.	CM
S2	Recipient Role	The role the recipient organisation took in the project	To identify lead and sub-recipients and trace allocation of funds	See proposed Code Set Recipient Role	CM
S3	Funds Disbursed	$ disbursed to the recipient organisation	To monitor proportion of funds allocated to the organisation from the overall award and distinguish effort across organisations	In cases where the award is made for collaborative arrangements, such as for CoREs and NSCs, the host organisation may also lead on particular projects. Dollars disbursed expressed in NZ$ and exclusive of GST.	CM
S4	Funds Spent	$ spent by the recipient organisation	To ensure transparency of funding and that funding is spent in a timely manner	Dollars expressed in NZ$ and exclusive of GST	CM
S5	Indirect Costs	$ spent on indirect costs	To monitor the full-cost funding model and identify money spent on indirect costs	This may be a simple proportion of total allocated funds. Dollars should be reported in NZ$.	O

2.12. Researchers

Researchers, technicians and supporting staff contribute to RS&I. The national data collection on RS&I requires data on researchers to assess applications, track outputs and understand collaborative flows in the RS&I system.

A researcher is a professional engaged in the conception or creation of new knowledge. They conduct research and improve or develop concepts, theories, models, techniques, instrumentation, software or operational methods.

It is likely that the most appropriate source for this information will be the government CV for researchers.[6] The majority of information in the CV can be sourced from the researcher's ORCID record through integration between the CV and ORCID. Until the electronic CV is functional, it is likely that this information will be sourced from existing data sources, such as applications.

Some elements are mandatory for researchers working on projects wholly or partly funded by the New Zealand Government (marked CM). Other elements are optional.

Item	Name	Definition	Reason	Comments	Obligation
R1	Researcher Legal Name	The full legal name of a researcher	To facilitate linking of data when an ORCiD cannot (or has not) been supplied		CM
R2	Researcher ORCID	The persistent identifier generated by the ORCID system	A unique, persistent identifier to automate and link data, and improve efficiencies in data systems		O
R3	Affiliated Organisation	The organisation(s) with whom a researcher is affiliated	To understand organisational affiliations of researchers and derive organisational measures from aggregating researcher information	In preference use NZBN for New Zealand research providers. But may also be legal name. If international then use an international organisation ID (eg Ringgold or GRID).	CM

[6] This is one of the actions contained in the domain plan.

R3.1	Affiliated Organisation Type	The type of organisation contracted to deliver the project	To understand the relative allocation and effort across the system by type of organisation	See proposed Code Set Organisation Type	CM
R4	Academic qualification(s)	The name of the tertiary qualification(s) held by the researcher	To understand the effects of qualifications on research performance	Several existing code sets may be relevant for this information (NZREG, QACC). Further discussion is needed to identify most appropriate option(s).	CM
R4.1	Date academic qualification conferred	Date on which the qualification was conferred	To assist in understanding career paths and trajectories		CM
R4.2	Discipline of academic qualification	Discipline of the qualification	To understand the effects of disciplines on research performance and trajectories	Several existing code sets may be relevant for this information (NZSCEDFIELD, ANZSRC) and further discussion is needed to identify most appropriate option(s).	CM
R4.3	Awarding institution of academic qualification	Institution having awarded the qualification	To understand links between researchers and institutions		CM
R5	Gender	The gender identity of the researcher	To develop measures that will address matters of importance affecting gender minority groups	Propose using level one of Statistics NZ Gender Identity Classification. This information is only used at aggregated levels for statistical and reporting purposes.	O
R6	Ethnicity	The ethnic group or groups with which the researcher identifies or feels they	To understand the ethnic diversity across the system and develop measures that will address matters of importance affecting	Propose using level two of Statistics NZ Ethnicity Classification. This information is only used at aggregated levels for	O

		belong. Ethnicity is a measure of cultural affiliation, as opposed to race, ancestry, nationality or citizenship.	ethnic minority groups	statistical and reporting purposes. Ethnicity is self-perceived and people can belong to more than one ethnic group.	
R7	Iwi affiliation	The iwi affiliates of the researcher. Iwi today is the focal economic and political unit of the traditional Māori descent and kinship based hierarchy of: Waka (founding canoe), iwi (tribe), hapū (sub-tribe) and whānau (family).	To allow the Crown and Iwi to monitor obligations under the Treaty of Waitangi. To assist iwi in planning and resourcing	Propose using the Statistics NZ Iwi Classification. Multiple responses are allowed. The Māori Reference Group will be asked to provide additional guidance around this element. This information is only used at aggregated levels for statistical and reporting purposes.	O
R8	Date of Birth	The date of birth of the researcher	To understand the age demographic across the sector including needs for succession planning and support for particular groups	This information is only used at aggregated levels for statistical and reporting purposes.	O
R9	Career Stage	The career stage of the researcher	To understand the proportion of researchers at different stages of their career. Can assist in development of funding mechanisms and support tools	This information is only used at aggregated levels for statistical and reporting purposes.	O
R10	Years in research	The number of years a researcher has been active in research	To understand career trajectories and needs for succession planning and support for particular groups		O
R11	Prestigious prize or medal	A prestigious prize or medal awarded to a	To capture markers of outstanding contributions		O

		researcher			
R11.1	Awarding institution of prize or medal	The institution awarding the prize or medal	To recognise the awarding institution		O
R11.2	Amount of prize/medal	The amount of the prize or medal	To recognise the additionality and financial contribution to research associated with a prize or medal		O
R12	Professional Membership	The name of a professional body or association to which the researcher belongs	To recognise membership of professional bodies	Provide NZBN if possible. A professional body may include bodies responsible for accreditation such as clinical colleges.	O
R13	Professional Qualification	A qualification granted by a professional body	To recognise qualifications other than academic		O

2.13. End User Collaborators

An end user is a stakeholder that is likely to use the research and who will benefit directly from it. An end user may be an organisation, a business, a sector, or a community group including iwi/Māori. An end user may be involved in defining the research questions and shaping the work, not just involved in the uptake of its findings.

Collaboration is active participation in joint R&D and innovation projects with other organisations but excludes pure contracting out of work. It can involve the joint development of new products, processes or other innovations with customers and suppliers as well as horizontal work with other enterprises or public research organisations.

As contracting out of work is excluded, this entity only applies to R&D and innovation projects, not scientific services and products.

This entity is not designed to capture all potential or expected end users. It is limited to end user collaborators, i.e. those end users who are actively engaged in a joint R&D and/or innovation project.

These elements are mandatory for projects wholly or partly funded by the New Zealand Government and where an end user collaborator is associated with the project. For all other projects, these elements are optional.

Item	Element	Definition	Reason	Comments	Obligation
E1	End user ID	An identifier for end user entity	To determine the degree of collaboration between projects and the end users of the project results	May be an NZBN, Statistics NZ Iwi classification, ANZSIC (for industries), or legal name (for international organisations, individuals, groups or any other organisation).	CM
E2	End user type	The type of end user	To better understand the types of organisations and groups that are collaborating with researchers and innovators	See proposed Code Set End User Collaborator Type	CM

E3	Nature of collaboration	The nature of the collaboration with the entity end user	To determine the nature of the collaboration between the project and the end users of the project results	See proposed Code Set Nature of End User Collaboration	CM

2.14. Outputs

An output is a good or service generated from research, science and innovation activities. This applies to only final outputs, not interim or non-published outputs.

It is likely that data for outputs will come from research and science organisations.

These elements are mandatory for projects wholly or partly funded by the New Zealand Government. Provision of other outputs is optional.

Item	Name	Definition	Reason	Comments	Obligation
O1	Output Type	The type of output produced	To be able to investigate the types of outputs generated by the system and their relative benefits downstream	See proposed Code Set Output Type	CM
O2	Output Title	The title of the output	To have useful contextual information about an output that can be used for analysing and clustering topics and themes		CM
O3	Contributor	The name of output contributor or creator.	To link outputs to those who have produced them	Outputs with multiple authors will have multiple entries	CM
O4	Publication Date	The date of publication, release, opening or granting	To track when outputs are produced		CM
O5	Output Description	Basic description of the contents of the output	To understand the content and nature of outputs	For many output types (eg journal articles), this is the abstract	CM
O6	Output Identifier	A universal identifier for the output	To allow output to be found and linked to other data		CM

O7	Output Identifier Type	To indicate what type of identifier has been supplied			CM
O8	ANZSRC Field of Research (6-digit)	The ANZSRC FoR for the output at the 6-digit level	To understand the balance of investments by FoR and to link inputs and outputs by fields of research	See ANZSRC FoR	CM
O9	Project ID	The NRIS project identifier(s) that the output is from	To allow linking of outputs to projects and awards		CM

2.15. Use of Output by End User

Data elements on the use of outputs by end users will be developed for Version 2.

2.16. Use of Output by Research Community

Data elements on the use of outputs by the research community will be developed for Version 2.

3. Code Sets

This section contains draft code sets developed for this model.

A code set is a collection of common codes that are required by specific data elements.

The adoption of common code sets will reduce the need for complex interface programmes to translate or manipulate data being exchanged. They will also contribute towards creating a common understanding of data, thus allowing better analysis and interpretation.

Several code sets still need to be developed:

- Fund
- Vote
- Appropriation
- Funder theme
- Benefiting region
- National infrastructure
- Career stage.

These code sets will be developed over the coming months and incorporated into Version 2, or Version 1 if available sooner.

3.1. Code Set Fund Type

Code	Description	Definition	Guide for Use
C	Contestable	Awards are granted following an open call for proposals that are subject to competition	Includes all contestable rounds whether in NZ or otherwise. Examples include: Marsden, Endeavour, VMCF, HRC programmes and projects, CoREs, PSAF, awarded tenders, requests for proposal, most philanthropic funding. Also includes capacity building awards, such as fellowships.
N	Negotiated	Funder and provider negotiate a set of expected deliverables	Includes CRI core funding, IRO capability funding, SSIF, NSCs, some industry funding and some international funding. Typically, industry funding and contract research will be coded as negotiated unless there has been a tender or RfP process, in which, the code contestable applies.
O	On-demand	Funding is awarded if provider or proposal meets a specified set of criteria	Includes Callaghan Innovation Growth Grants, MBIE Partnerships Programme prior to 2017
I	Formula-based institutional funding	Funding awarded to an institution on the basis of a formula	Includes the Performance-Based Research Fund
E	Endowment	A financial asset, in the form of a donation made to a non-profit group, institution or individual consisting of investment funds or other property that may or may not have a stated purpose at the bequest of the donor.	Generally, endowments are designed to keep the principal amount intact while using the investment income. Examples would be an endowed position at a research institution, scholarships, and research funds.

3.2. Code Set Organisation Type

Level 1		Level 2		Level 3		Level 4		Definition	Examples
A	State Sector								
		A01	Government department, non-public service department, office of Parliament and RBNZ					Public service departments, non-public service departments, offices of Parliament and the Reserve Bank of NZ. State Sector Act 1988	Examples: MBIE, DOC, MPI, NZDF, NZ Police, Parliamentary Commissioner for the Environment
		A02	Crown entity						
				A021	Crown Research Institute			A Crown Research Institute is a Crown-owned company that carries out scientific research for the benefit of New Zealand, established under the Crown Research Institute Act 1992.	Complete set: AgResearch, GNS Science, Institute of Environmental Science and Research (ESR), Landcare Research, National Institute of Water and Atmospheric Research (NIWA), Plant and Food Research, Scion
				A022	Tertiary education institution			A tertiary education organisation is a tertiary education provider, an industry training organisation, or a person or body that provides	

								tertiary education-related services in accordance with the Education Act 1989.	
						A0221	University	A university is characterised by a wide diversity of teaching and research, especially at a higher level, that maintains, advances, disseminates, and assists the application of, knowledge, develops intellectual independence, and promotes community learning. A University has the following characteristics: 1 is primarily concerned with more advanced learning, the principal aim being to develop intellectual independence 1 research and teaching are closely interdependent and most teaching is done by people who are active in advancing knowledge 1 meets international standards of research and teaching 1 is a repository of knowledge and expertise	Complete set: Auckland University of Technology, Lincoln University, Massey University, University of Auckland, University of Canterbury, University of Otago, University of Waikato, Victoria University of Wellington

								1 accepts a role as critic and conscience of society. Section 162(4) of the Education Act 1989	
						A0222	College of Education	A college of education is characterised by teaching and research required for the pre-school, compulsory and post-compulsory sectors of education, and for associated social and educational service roles.	
						A0223	Polytechnic or Institute of Technology	A polytechnic is characterised by a wide diversity of continuing education, including vocational training, that contributes to the maintenance, advancement, and dissemination of knowledge and expertise and promotes community learning, and by research, particularly applied and technological research, that aids development. [note Act only mentions "polytechnic"]	Complete set: Ara Institute of Canterbury, Eastern Institute of Technology, Manukau Institute of Technology, Nelson Marlborough Institute of Technology, Northland Polytechnic, Otago Polytechnic, Southern Institute of Technology, Tai Poutini Polytechnic, the Open Polytechnic of New Zealand, Unitec New Zealand, Universal College of Learning, Toi Ohomai Institute of Technology, Waikato Institute of Technology, Wellington Institute of Technology, Western Institute of Technology at Taranaki, Whitireia Community Polytechnic

						A0225	Wānanga	A wānanga is characterised by teaching and research that maintains, advances, and disseminates knowledge and develops intellectual independence, and assists the application of knowledge regarding ahuatanga Māori (Māori tradition) according to tikanga Māori (Māori custom).	Complete set: Te Wānanga o Aotearoa, Te Wānanga of Raukawa, Te Whare Wānanga o Awanuiārangi
				A023	District health board			A district health board as defined in Section 5(3) of the Public Health and Disability Act 2000. Includes the public hospitals owned and funded by district health boards.	Auckland DHB Waitemata DHB Capital and Coast DHB Canterbury DHB
				A024	Callaghan Innovation				
				A025	Crown entity not elsewhere classified				Accident Compensation Corporation (ACC), Energy Efficiency and Conservation Authority (EECA), Health Quality and Safety Commission (HQSC), Tertiary Education Commission

									(TEC), New Zealand Productivity Commission
		A03	State-owned enterprise						Meteorological Service of NZ, Transpower
		A04	Public Finance Act Schedule 4/4A Organisation and Company						Agricultural and Marketing R&D Trust, Pacific Island Business Development Trust, Te Ariki Trust, REANNZ
B	Local Authority								
		B01	Regional Council					A regional council is one type of local authority. Local Government Act 2002. Unitary bodies (eg Nelson, Tasman and Marlborough) should be considered Regional Councils	
		B02	Territorial Authority					A territorial authority is a type of local authority. It can be either a city or district council. Local Government Act 2002. Unitary bodies (eg Nelson, Tasman and Marlborough) should be considered Regional Councils	

		B03	Council-controlled trading organisations					Also called Council-controlled organisations and (previously Local Authority Trading Enterprise (LATE). Any company with a majority council shareholding, or a trust or similar organisation with a majority of council-controlled votes or council-appointed trustees, unless designated otherwise.	Auckland Transport, Wellington Zoo, Christchurch City Holdings.
C	Mixed Ownership								Genesis Energy, Meridian Energy, Mighty River Power
D	Private Sector								
		D01	For profit entity					For-profit entity	Fonterra, Fisher and Paykel Healthcare, Wool Industry Research Limited, Aqualinc Research Limited, CRL Energy Limited, Lincoln Agritech Limited
				D011	Individual Proprietorship				
				D012	Partnership				
				D013	Registereed LLC (non Co-op)				

				D014	Co-operative Companies				
				D015	Joint Ventures and Consortia				
				D016	Branches of Companies Incorporated Overseas			New Zealand branches of overseas businesses.	
		D02	Non-for-profit organisation					Includes trusts, industry associations, incorporated societies	
				D021	Non-profit / Charitable Trust				Cawthron Institute, Malaghan Institute of Medical Research, Medical Research Institute of New Zealand, Motu
				D022	Industry association				DairyNZ, New Zealand Leather and Shoe Research Association (LASRA)
				D023	Incorporated society				BRANZ Incorporated
				D024	Unincorporated society				
		D03	Trusts/Estates						
		D04	Private Higher Education					Institutes of higher education (eg Specialist colleges and private	

								training establishments). Note that these may be for profit or not for profit.	
E	Other								
		E01	Overseas organisation					Any research organisation not based in New Zealand.	
		E02	Other Business Types						

3.3. Code Set Co-funding Type

Code	Description	Definition	Guide for Use
DN	Direct cash from non-NZ government sources	Investment from non-Government sources to assist in the delivery of a project that is supported by a primary award (based on European Commission Regulation (EU) No 1301/2013)	Examples include company R&D funds, philanthropic donations
DG	Direct cash that originates from NZ government sources	Investment from NZ government sources to assist in the delivery of a project that is supported by a primary award (based on European Commission Regulation (EU) No 1301/2013)	Examples include PGP
IE	In-kind FTE support quantified and measured as $ value	FTE resources contributed as direct expenditure, but made available free of charge, to projects by a third party for the specific purpose of conducting the project that are not reimbursed by the funder award (based on Annex D Horizon 2020 – Work Programme 20162-17 p. 12 and Regulation (EU) No 1290/2013 of the European Parliament and of the Council of 11 December 2013)	Refers to instances where an organisation agrees to contribute a specific and discrete allocation of time (FTE) of an individual involved in a specific project. An example is where a researcher may request 0.10 FTE of salary reimbursement from a funder and the host employer agrees to fund 0.10 FTE so that the researcher is effectively giving 0.20 FTE to the project. Auditable records must be available to support the $ values attributed to this code.
IF	In-kind other support quantified and measured as $ value	Non-FTE support contributed as direct expenditure, but made available free of charge, to projects by a third party for the specific purpose of conducting the project that are not reimbursed by the funder award (based on US Office of Management and Budget Federal Acquisition Regulations FAR	Examples include: • supply of data and materials, such as where a company provides drugs free of charge for use in a research project • where an organisation might provide space and/or facilities • the transfer of Māori expertise or cultural knowledge

		Part 31.2)	• research scholarships and internships Auditable records must be available to support the $ values attributed to this code.

3.4. Code Set Project Type

Classification of projects into type is made on the basis of the intent and objectives of the project. The project's activities, not expected outputs, determine the type(s) used.

Code	Description	Definition	Guide for Use
RD	Frascati R&D	Creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society. Source: Frascati Manual.	Note that all R&D activities are innovation activities. For an activity to be an R&D activity it must satisfy the five core criteria listed below: • Novel: To be aimed at new findings • Creative: To be based on original, not obvious concepts and hypotheses • Uncertain: To be uncertain about the final outcome • Systematic: To be planned and budgeted • Transferable and/or reproducible: To lead to results that could possibly be reproduced. R&D activities can occur across any scientific or research discipline, including the arts and humanities. *Activities to be excluded:* R&D must be distinguished from a wide range of related activities with a scientific and technological basis including: • Scientific and technical information services (e.g. scientific and technical information, extension and advisory services). Include these in the scientific services and product category. • Testing and standardisation (e.g. routine testing and analysis of materials, components, products, processes, soils, atmosphere etc.). Include these in the scientific services and product category. • Feasibility studies (e.g. investigation of proposed engineering projects using existing techniques to provide additional information before deciding on implementation.) • Specialised health care (e.g. routine investigation and normal application of specialised medical knowledge).

			• Policy-related studies (e.g. analysis and assessment of the existing programmes, policies and operations of government departments and other institutions) • Knowledge transfer, outreach and extension activities (these have a separate category). Artistic performances are normally excluded from R&D as they fail the novelty test of R&D. They are looking for a new expression, rather than for new knowledge. The reproducibility criterion also is not met. For a software development project to be classified as R&D, its completion must be dependent on a scientific and/or technological advance, and the aim of the project must be the systematic resolution of a scientific and/or technological uncertainty. Include prototypes in R&D as long as the primary objective is to make further improvements. Only include industrial design if design is required during R&D. Include trial productions only if production implies full-scale testing and subsequent further design and engineering. Feasibility studies, policy-related studies and programmatic evaluations are not R&D.
IN	Non-R&D Innovation	Non-R&D activities aimed at the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method. Definition based on the Oslo	Non-R&D innovation includes new concepts and technologies developed via marketing and relations with users, design and engineering capabilities and monitoring other organisations. Market research, process re-engineering, tooling up, manufacturing start-up are included in this category. Industrial design for production processes is also included in this category.

		Manual 2005, but modified to reflect non-business innovation.	
SS	Scientific Services and Products	Activities based on a scientific process that do not meet the five criteria of R&D	Includes 1. **Monitoring and data management** (regular and ongoing) - eg fish stocks, GeoNet, climate and atmospheric monitoring, Growing Up in New Zealand, the Dunedin Multidisciplinary Health and Development Study. 2. **Curation of collections** - eg plants, bacteria, fossils, marine invertebrates. 3. **Laboratory analysis** - eg water testing, forensic testing, GNS nuclear carbon dating. 4. **Field surveys (on-demand)** - eg Tangaroa fisheries trawl surveys, biosecurity surveillance, disease monitoring. 5. **Expert advice and assessment** (includes running existing models) - eg fish stock assessment modelling, species identification, expert witness/affidavits, membership of national and international panels/boards. 6. **Selling of products** eg sensors, forecasts, instruments, maps and charts. Many scientific services and products are not classified as R&D because they do not meet the creative and uncertain criteria. A project on devising new or substantially improved testing methods should be classified under R&D.
KT	Knowledge Transfer, Outreach and Extension	The diffusion, dissemination and application of knowledge, including through community engagement and outreach activities.	Many R&D projects have a knowledge transfer component which includes science communication to a broad audience. Some projects are specifically aimed at transferring knowledge to a specified set of users, a segment of society, or to society as a whole. This project type includes community engagement and outreach activities, such as MBIE Curious Minds initiatives that do not seek to generate new knowledge, outreach to schools and university

			students, and projects aimed at enhancing the uptake of knowledge. Exclude commercialisation activities.
CM	Commercialisation	Activities involved in the process of taking an RS&I output to market	Includes activities aimed at intellectual property protection, such as patenting, licensing, trade secrets, design registrations.

3.5. Code Set Centre of Research Excellence Theme

Code	Description	Comment
01	**Bio-Protection Research Centre**	
0101	Anticipating contemporary evolution in biosecurity threats and classical biocontrol systems	
0102	Pathogen virulence and plant defence	
0103	Enhancing microbial-based biological control	
0104	Achieving protection in complex and dynamic systems	
02	**Brain Research New Zealand**	
0201	Neurodiscovery and disease mechanisms	

0202	Neurobiomarkers and disease indicators	
0203	Harnessing and directing neuroplasticity	
0204	Prevention, intervention and delay	
03	**The Dodd-Walls Centre for Photonic and Quantum Technologies**	
0301	Photonic sensing and imaging	
0302	Photonic sources and components	
0303	Quantum fluids and gases	
0304	Quantum manipulation and information	
04	**The MacDiarmid Institute for Advanced Materials and Nanotechnology**	
0401	Materials for high-value technologies	
0402	Materials for energy capture and utilisation	
0403	Functional nanostructures	
05	**Maurice Wilkins Centre for Molecular Biodiscovery**	
0501	Diabetes and metabolic disease	
0502	Infectious disease	
0503	Integrative technologies	

06	**Medical Technologies Centre of Research Excellence**	
0601	Diagnostics and therapeutics	
0602	Interventional technologies	
0603	Assistive technologies	
0604	Telehealth and health informatics	
0605	Tissue engineering for regenerative medicine	
07	**Ngā Pae o te Māramatanga**	
0701	Whai rawa - Research for Māori economies	
0702	Te tai ao - Natural Environment	
0703	Mauri ora (human fluorishing)	
08	**QuakeCoRE**	
0801	Seismic demands and consequent geohazards	
0802	Infrastructure component modelling	
0803	Infrastructure network interactions, interdependencies and socio-economic impact	
0804	Novel technologies, design philosophies, and decision-support tools	
09	**Riddet Institute**	

0901	Food materials and structures	
0902	Gastrointestinal interactions	
0903	Metabolism and nutrition	
0904	Structuring foods for optimal functionality and health	
10	**Te Pūnaha Matatini - Complex Changes**	
1001	Complex data analytics	
1002	Complex economic and social systems	
1003	Complexity and the biosphere	

3.6. Code Set National Science Challenge Theme

Code	Description	Comment
01	**A Better Start**	
0101	Obesity	
0102	Literacy	
0103	Big Data	
0104	Youth Mental Health	
0105	Māori Research	

02	**Ageing Well**	
0201	Enabling independence and autonomy	
0202	Ensuring a meaningful life through social integration and engagement	
0203	Recognising at a societal level the value of ongoing contributions of knowledge and experience of older people	
0204	Reducing disability	
0205	Developing age-friendly environments	
03	**Building Better Homes, Towns and Cities**	
001	Transforming Homes, Towns and Cities	
002	Next Generation Information for Better Outcomes	
003	Supporting Success in Regional Settlements	
004	Shaping Places Future Neighbourhoods	
005	Evovling to Enhance Mauri	
006	Transforming the Building Industry	
04	**Healthier Lives**	
0401	Cancer	
0402	Cardiovascular disease	

0403	Diabetes	
0404	Obesity	
05	**High-Value Nutrition**	
0501	Metabolic health	
0502	Gastrointestinal health	
0503	Immune health	
0504	Weaning foods for health	
06	**New Zealand's Biological Heritage**	
0601	Real-time biological heritage assessment	
0602	Reducing risks and threats across landscapes	
0603	Enhancing and restoring resilient ecosystems	
07	**Our Land and Water**	
0701	Greater value in global markets	
0702	Innovative, resilient land and water use	
0703	Collaborative capacity	
0704	Operating at the nexus	
08	**Resilience to Nature's Challenges**	
0801	Rural	

0802	Urban	
0803	Edge	
0804	Mātauranga Māori	
0805	Governance	
0806	Infrastructure	
0807	Economics	
0808	Culture	
0809	Hazard	
0810	Trajectories	
09	**Science for Technological Innovation**	
0901	Vision Mātauranga	
0902	Materials, Manufacturing and Design	
0903	Sensors, Robotics and Automation	
0904	IT Data Analytics and Modelling	
10	**Sustainable Seas**	
1001	Our seas	
1002	Valuable seas	
1003	Tangaroa	

1004	Dynamic seas	
1005	Managed seas	
1006	Vision Mātauranga	
11	**The Deep South**	
1101	Engagement	
1102	Vision Mātauranga	
1103	Impacts and implications	
1104	Earth system modelling and prediction	
1105	Processes and observations	

3.7. Code Set Benefiting Region

Code	Description	Comment
01	Northland Region	
02	Auckland Region	
03	Waikato Region	
04	Bay of Plenty Region	
05	Gisborne Region	
06	Hawke's Bay Region	
07	Taranaki Region	
08	Manawatu-Wanganui Region	
09	Wellington Region	
12	West Coast Region	
13	Canterbury Region	
14	Otago Region	
15	Southland Region	
16	Tasman Region	
17	Nelson Region	

18	Marlborough Region	
81	Tokelau	New Zealand Realm Country
82	Niue	New Zealand Realm Country
83	Cook Islands	New Zealand Realm Country
99	Area Outside Region	Area outside of New Zealand regions and identified NZ realm countries but still identified as belonging to New Zealand.

Note: This code set is based on the Statistics New Zealand Classification of Regional Councils 1998. It is augmented with countries part of the Realm of New Zealand.

3.8. Code Set Personnel Roles

L1	L1 Name	L2	L2 Name	Definition
R	Researcher	R0	Researcher	A professional engaged in the conception or creation of new knowledge. They conduct research and improve or develop concepts, theories, models, techniques, instrumentation, software or operational methods (Frascati 5.35)
		R1	Principal Investigator or Lead Scientist	The researcher with overall responsibility for delivering the project (based on Endeavour Fund applicant guidelines)
		R2	Co-Investigator	A researcher involved in the project, whose expertise is critical to the success of the project (based on Endeavour Fund applicant guidelines)
		R3	Post-Doctoral Researcher	
		R4	PhD Student	
		R5	Masters Student	
		R6	Intern	
T	Technician	T0	Technician	A technician is a person whose main tasks require technical knowledge and experience in one or more fields of engineering, the physical and life sciences, or the social sciences, humanities and the arts. They participate in R&D by performing scientific and technical tasks involving the application of concepts and operational methods and the use of research equipment, normally under the supervision of research (Frascati 5.40)
O	Other	O0	Other	Supporting staff includes skilled and unskilled craftsmen, and administrative, secretarial and clerical staff participating in R&D projects or directly associated with such projects (Frascati 5.43)

3.9. Code Set Recipient Role

Code	Name	Description
L	Lead	Lead organisation identified in project documentation.
S	Sub-recipient	Organisation participating in research and innovation, receiving funding and/or resourcing from the lead organisation.
C	Contracted Service Provider	Organisation or entity contracted to provide a particular service to lead or sub-recipient, but not an active participant in the research and innovation project.
O	Other	Other, not elsewhere specified.

3.10. Code Set End User Collaborator Type

Code	Name	Description	Comment
1000	NZ Entity	A New Zealand-based entity.	Include industry bodies in this code
2000	Iwi	Today, the Iwi is the focal economic and political unit of the traditional Māori descent and kinship based hierarchy of: Waka (founding canoe), iwi (tribe), hapū (sub-tribe) and whānau (family).	When 2000 is selected, this indicates that an SNZ Iwi code has been supplied for answer E1. See Statistics NZ Iwi classification.
3000	Industry	A grouping of entities whose primary economic activity is similar. For example, agriculture, mining, or construction.	When 3000 is selected, this indicates that an ANZSIC code (any level, 1-4) has been supplied for answer E1. See http://www.stats.govt.nz/methods/classifications-and-standards/classification-related-stats-standards/industrial-classification.aspx
4000	International	International organisations	When 4000 is selected, this indicates that free text has been supplied for answer E1.
9999	Other	Individuals, groups, and organisations not elsewhere covered	When 9999 is selected, this indicates that free text has been supplied for answer E1.

3.11. Code Set Nature of End User Collaboration

Code	Description	Definition	Guide for Use
OS	Objective setting	The end user sets the objectives of the project with the project team	The end user must have approved the objectives of the project and this decision is recorded. Note that where an end user has funded, or co-funded, a project, this indicates objective setting. This fact will be picked up in the award or co-funding elements.
AE	Active engagement during project	The end user is actively engaged through the duration of the project through some formal mechanism	Formal mechanism could include membership on project governance or regular meetings at which the project and its achievements, methodology and challenges are discussed with the end user. Active participation includes contribution of cultural knowledge from iwi. This form of engagement must be recorded.
TR	Transfer of results of project	The end user is participating in the diffusion, dissemination and application of knowledge resulting from the findings of a project.	This could include organisation of end-user focussed events, such as conferences. There must be a formal record of this collaboration.

3.12. Code Set Output Type

L1	L1 Name	L2	L2 Name	Source	Description
PUB	Publication			CERIF	A scientific or academic publication
		PUB1	Architectural Plan	SUBGROUP	Design and planning for a building, and can contain architectural drawings, specifications of the design, calculations, time planning of the building process, and other documentation.
		PUB2	Archive	SUBGROUP	A collection of historical documents or records providing information about a place, institution, or group of people.
		PUB3	Book	ORCID	Books written by a single author or collaboratively based on research or scholarly findings
		PUB4	Book Chapter	ORCID	Texts written by a single author or collaboratively based on research or scholarly findings and expertise in a field. Self contained section of a book.
		PUB5	Book Review	ORCID	Critical review of works of fiction or non-fiction highlighting the contributions to an art, field or discipline.
		PUB6	Book Edited	ORCID	Books edited by a single author or collaboratively for the dissemination of research or scholarly findings that generally result from peer reviewed finding.
		PUB7	Conference Abstract	ORCID	Texts of a specified length that states the issue to be discussed in a proposed conference paper. Published as an abstract e.g. in book of abstracts or online.
		PUB8	Conference Paper	ORCID	Papers based on research written alone or collaboratively, presented at a conference, and published in the proceedings (not in scholarly journals).
		PUB9	Conference Poster	ORCID	Posters displayed in a conference setting and conveying research highlights.
		PUB10	Dissertation/Thesis	ORCID	Treatise/thesis advancing an original point of view resulting from research: a requirement for a doctoral degree and Masters Degree.

		PUB11	Editorial	CASRAI	Contribution in the provision of an opinion statement regarding a certain topic.
		PUB12	Encyclopaedia Entry	ORCID	Authored entries in a reference work or a compendium focusing on a particular domain or on all branches of knowledge.
		PUB13	Journal Article	ORCID	Articles in peer-reviewed publications that disseminate the results of original research and scholarship.
		PUB14	Journal Issue	ORCID	Periodical publications aimed at fostering intellectual debate and inquiry. Special journal issues are produced by editors with an established record of scholarship in the field and able to provide the direction of the theme. Journal issues bear a unique number of reference for publication. Researcher is the editor of the special issue (not the usual editor)
		PUB15	Magazine Article	ORCID	Articles in thematic publications published at fixed intervals.
		PUB16	Manual	ORCID	Course and assignment materials produced for teaching purposes.; Written material describing a tool, method or product distributed to users of that tool/method/product
		PUB17	Metadata Guide Entry	ORCID	Entries of new words, new meanings of existing words, changes in spelling and hyphenation over a longer period of time, and grammatical changes.
		PUB18	Newsletter Article 1	ORCID	Articles in publications aimed at researchers, decision-makers, professionals and the public that report on a research project or on the activities of a research chair or a research centre. The Newsletters promote research activities to the community and the university; mobilize knowledge to improve practice and inform policy, and provide relevant and accessible information to the broader public.
		PUB19	Newspaper Article 2	ORCID	Articles in a daily, weekly or monthly publication reporting on news and social issues aimed at the public. May entail critical analysis based on expertise in the field. Would include scholarly letter to editor but not general correspondance.
		PUB20	Report	ORCID	Reports disseminating the outcomes and deliverables of a research contract. May entail a contribution to public policy. Including through a White Paper or Think Piece.

		PUB21	Short Fiction	CASRAI	Original literary texts (prose or poetry).
		PUB22	Script	CASRAI	Written versions of a play, film, broadcast or other dramatic composition used in preparing for a performance and annotated with instructions for the performance.
		PUB23	Supervised Student Publication	ORCID	Articles on research findings published jointly with or supervised by the thesis advisor. The findings relate to research undertaken by the student or the supervisor's program of research.
		PUB24	Translation	ORCID	Translations of books and articles that identify modifications to the original edition, such as a new or revised preface.
		PUB25	Not elsewhere classified		
PROD	Product				A research result that is neither a publication nor intellectual property
		PROD1	Artefact, Object and Craftwork	SUBGROUP	Original creative work that includes painting, sculpture, carvings, photographs, illustrations, Taonga, and other created objects.
		PROD2	Artistic Exhibition	CASRAI	Showings of works of art under the direction of a curator, an artist or as a graduation exhibition.
		PROD3	Artistic Performance	ORCID	Collection of information records that, in combination, represent a full and up-to-date history of artistic or performance outputs resulting from, or related to, the person's research or scholarly activities.
		PROD4	Audio Recording	CASRAI	Works such as classical or indigenous music produced as a result of an artistic practice. May be produced and be commercially disseminated. Includes spoken-word or theatre and includes self-published information in new media.
		PROD5	Audio-visual	SUBGROUP	Outputs using both sight and sound, typically in the form of images and recorded speech or music. Includes TV and documentaries.
		PROD6	Broadcast	CASRAI	Services contributed in the form of interview(s) with the person with a member of the

			Interview		broadcast (TV or radio) media.
		PROD7	Choreography	CASRAI	Dance compositions created for production and dissemination.
		PROD8	Committee Membership	CASRAI	Services contributed as part of a group elected or appointed to perform such services.
		PROD9	Consulting-Advisory	CASRAI	Services contributed to develop findings, conclusions, and recommendations that are presented for consideration and decision making.
		PROD10	Course Developed	CASRAI	Contributions in the development of courses/modules for training or teaching purposes specific to research performed.
		PROD11	Curatorial-Museum Exhibition	CASRAI	Exhibits under the guidance of a curator responsible for a collection.
		PROD12	Data Set	ORCID	A series of structured observations, measurements or facts identified from the research which can be stored in a database medium.
		PROD13	Device	SUBGROUP	Object made for a particular technical purpose. Includes medical devices, storage and display devices (hardware).
		PROD14	Disclosure	ORCID	Publications that establish inventions as prior art thereby preventing others from patenting the same invention or concept.
		PROD15	Invention	ORCID	Practical and original/novel outputs arising from research.
		PROD16	Lecture/Speech	ORCID	Practical and original outputs arising from research. Invited/keynote speaker
		PROD17	Light Design	CASRAI	Works done within theatre or in relation to an art installation to design a production.
		PROD18	Map	SUBGROUP	geographic and geophysical maps produced in hard or digital form
		PROD19	Musical	CASRAI	Original musical scores available in a format for dissemination.

			Composition		
		PROD20	Musical Performance	CASRAI	Original musical performance.
		PROD21	Online Resource	ORCID	Information accessible only on the web via traditional technical methods (i.e. hyperlinks). Information should not be accessible elsewhere eg printed dictionary.
		PROD22	Other	SUBGROUP	Other outputs not categorised elsewhere. Must be underpinned by research and relevence should be explained.
		PROD23	Performance Art	CASRAI	Avant-garde or conceptual pieces of music, song, Haka, Waiata, kapa haka, dance or theatre performed for an audience. It may be scripted or improvisational.
		PROD24	Presentation	SUBGROUP	Sharing and presenting research insights orally to communities, interest groups, etc.
		PROD25	Research Technique	ORCID	A practical method or skills applied to particular tasks identified as part of the research.
		PROD26	Research Tool	ORCID	Series of observations, measurements or facts identified from the research. They include bibliographies, indices and catalogues of research collections; concordances and dictionaries; materials that facilitate access to archival holdings or collections such as repository guides, inventories of a group of manuscripts or of a body of archives, inventories or documentary materials, thematic guides to archival materials, records surveys and special indices; scholarly editions; and data series. Excludes devices.
		PROD27	Set Design	CASRAI	Creations of theatrical, as well as film or television scenery (also known as stage design, scenic design or production design).
		PROD28	Software	SUBGROUP	Computer instructions or data that can be stored electronically.
		PROD29	Sound Design	CASRAI	Art and process of manipulating audio elements to achieve a desired effect. It is employed in a variety of disciplines including film, theatre, music recording, and live music performance. It involves the manipulation of previously composed audio or the creative composition of new

					audio.
		PROD30	Spin Off Company	ORCID	A company set up by a Research Organization to make commercial use of the results and findings of the Research project. Includes spin-outs and starbursts.
		PROD31	Standard or Policy	ORCID	A rule or principle developed from research and used as a basis for judgement. Not a technical standard (see Technical Standard output type)
		PROD32	Technical Standard	ORCID	Technical Standards (industrial or otherwise) that have originated from the research projects in which new protocols, methods or materials may be developed.
		PROD33	Text Interview		Services contributed in the form of interview(s) with the person with a member of the print or online media.
		PROD34	Theatric	CASRAI	Creation, production, dissemination of plays by professional theatre artists and organizations. The artefacts, such costumes, props, sets and scripts, may be the object of a public exhibit.
		PROD35	Video Recording	CASRAI	Works such as film, video, or new media developed as a result of an artistic practice. May serve for commercial purposes.
		PROD36	Visual Artwork	CASRAI	Works such as film, video, photograph, illustration or new media developed as a result of an artistic practice. May serve for commercial purposes.
		PROD37	Website	ORCID	Stand-alone locations on the web where multiple types of information on a specific theme are available. May include interactive features for contributions from readers. Includes social media.
		PROD38	Not elsewhere classified		
IP	Intellectual Property				An output protected through intellectual property rights or signed agreements exploiting a piece of intellectual property

		IP1	License	ORCID	Signed agreements to exploit a piece of intellectual property such as a process, product, data, or software.
		IP2	Patent	ORCID	A form of IP protection that defines the exclusive right by law for inventors and assignees to make use of and exploit their inventions, products or processes, for a limited period of time.
		IP3	Plant Variety Rights	IPONZ	A grant of plant variety rights for a new plant variety affording the grantee the right to produce for sale and to sell propagating material of the variety
		IP4	Registered Copyright	ORCID	Registered ownership of rights under a system of laws for promoting both the creation of and access to artistic, literary, musical, dramatic and other creative works.
		IP5	Trademark	CASRAI	Marks such as a name, word, phrase, logo, symbol, design, image of a product or service that indicates the source and provides the right to control the use of the identifier. Must be registered
		IP6	Not elsewhere classified		

3.13. Code Set Output Identifier Type

Code	Description	Definition
100	O_ISBN10	A unique numeric commercial book identifier, issued prior to 2007
200	O_ISBN13	A unique numeric commercial book identifier, issued from 2007 onwards
300	O_DOI	A unique alphanumeric string assigned to identify content and provide a persistent link to its location on the internet
400	O_URL	An address to the location of the output on the internet
500	O_ISSN	A serial number used to uniquely identify a serial print publication
600	O_EISSN	A serial number used to uniquely identify a serial electronic publication
700	O_PII	A unique identifier used by some scientific journals to identify documents

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