

Steward and custodian framework for New Zealand fundamental geospatial themes and datasets

Fundamental Data Guidance Series #02
Spatial Data Infrastructure

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Historic. Not in use.



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1 Introduction

1.1 Purpose of document

This document sets out the responsibilities, and expectations for the New Zealand Geospatial Office (NZGO), stewards, and custodians of New Zealand's fundamental geospatial data themes and datasets, and defines the relationships between the agencies and roles involved. It also provides guidelines and assistance for agencies taking on stewardship or custodianship responsibilities.

1.2 Intended use of document

This document is intended for use by any agency that is interested in, or has committed to, some level of accountability for one or more fundamental geospatial datasets.

1.3 References

This document should be read in conjunction with the following documents;

- NZGO 2012, *New Zealand fundamental geospatial datasets and themes*, LINZ Wellington
- New Zealand Government 2011, *CAB Min (11) 29/1*

1.4 Terminology

The terms steward and custodian, when used in this document, refer to the agency taking on a role of stewardship or custodianship.

The terms stewardship and custodianship encompass a broader view of all components and aspects related to the role of steward or custodian, including the point of contact for the stewardship, the functions, and responsibilities.

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2 Rationale

2.1 New Zealand Geospatial Strategy

In January 2007 the Government released the New Zealand Geospatial Strategy: Understanding our Geographic Information Landscape¹. The strategy identified the four strategic goals of Governance, Data, Access, and Interoperability.

The New Zealand Geospatial Strategy's key data goal is to:

ensure the capture, preservation, and maintenance of fundamental (Priority) geospatial datasets, and set guidelines for non-fundamental geospatial data.

Fundamental geospatial datasets are datasets that provide the minimum core set of nationally-significant data that are critical to the effective running of New Zealand, and work together to help support growth in the economy.

2.2 Principles for managing data and information

On 8 August 2011 the Government released Principles for Managing Data and Information held by the New Zealand Government². These principles have been developed to ensure high quality management of the information the Government holds on behalf of the public.

In summary, the principles state that government data and information should be open, readily available, well managed, reasonably priced and re-usable unless there are necessary reasons for its protection. Personal and classified information will remain protected. Government data and information should also be trusted and authoritative.

Government-owned fundamental geospatial datasets must be managed in a way consistent with these principles, in particular, the 'Well Managed' principle that:

"Data and information held and owned by government:

- effectively belong to the New Zealand public
- are a core strategic asset held by government as a steward on behalf of the public and
- should only be collected or generated for specified public policy, operational business, or legislative purposes"

Fundamental geospatial datasets held in the private sector by organisations that have agreed to be custodians should, as far as is reasonably possible, be managed in a manner consistent with these principles.

2.3 Spatial data infrastructure

On 8 December 2010, the Cabinet Economic Growth and Infrastructure Committee directed LINZ and the NZGO to undertake further work on the design and implementation details of a spatial data infrastructure.³

¹ A New Zealand Geospatial Strategy: Understanding our Geographic Information Landscape. Land Information New Zealand. January 2007

² Principles for Managing Data and Information held by the New Zealand Government, approved by Cabinet on 8 August 2011 (CAB Min (11) 29/12 refers) (<https://www.ict.govt.nz/guidance-and-resources/open-government/new-zealand-data-and-information-management-principles/>)

³ Capturing Economic Benefits from Location-Based Information, approved by Cabinet on 8 December 2010 (EGI Min (10) 30/14 refers) (http://www.linz.govt.nz/system/files_force/media/file-attachments/cabinet-minute-capturing-benefits-of-location-based-information.pdf?download=1)

A spatial data infrastructure (SDI) can be broadly defined as a network of components that allows people to find, share and use spatial data.

The fundamental data and steward and custodian frameworks are part of the work programme to implement the NZ SDI.

2.4 Why have a steward and custodian framework

A stewardship and custodianship framework ensures that, where there is no other legally mandated governance, there are organisations that have formally been appointed with accountability and responsibility for a geospatial dataset, and that those datasets are efficiently managed in a way that benefits the country as a whole.

Where a fundamental geospatial dataset is managed by statutory or regulatory requirement, stewardship ensures that the dataset is made available in a way that supports its full participation in the national SDI and benefits the country as a whole.

Formally assigned stewardship and custodianship helps resolve the possibility of different agencies duplicating efforts in managing and maintaining essentially the same dataset.

2.4.1 Primary Roles

Three primary roles⁴ and a number of secondary roles have been identified to ensure that New Zealand's interest in its information assets is not compromised and to ensure accountability for geospatial data management.

The three primary roles are:

- spatial data infrastructure leadership,
- steward of a fundamental data theme, and
- custodian of a fundamental geospatial dataset.

Custodians are divided into two roles with distinct responsibilities:

- dataset leadership, and
- dataset delivery.

2.5 Aspirational goals

The three statements below are aspirational goals for datasets in the New Zealand spatial data infrastructure. Stewards and custodians should aim to show that dataset users:

- use an Open Geospatial Consortium (OGC)⁵ compliant web service, as users recognise that it is the easiest and most efficient way to use the data,
- are satisfied with the quality and completeness of dataset they are consuming, and
- find it easy to discover, access, share, and re-use the dataset, and use the dataset to interoperate with other agencies.

⁴ NZGO 2011, Discussion paper: stewardship and custodianship for geospatial data, LINZ, Wellington

⁵ The Open Geospatial Consortium is an international industry consortium of companies, government agencies and universities participating in a consensus process to develop publicly available interface standards. [//www.opengeospatial.org/](http://www.opengeospatial.org/)

3

Framework overview

		Role	Responsibilities	Relationships	Structure
Stewardship Agencies are stewards of geospatial data and information and must provide and require good practices which manage the data and information over their life cycle, including catering for technological obsolescence and long-term preservation and access. Good practices also include collaborating with other agencies and the public, facilitating access, strengthening awareness, and supporting international cooperation	SDI Leadership	Spatial Data Infrastructure Implementing, leading, and managing the stewardship and custodianship framework for the geospatial environment in New Zealand Ensuring that appropriate overarching policies, base standards, and processes are developed and maintained on behalf of the Crown.	New Zealand Geospatial Office <ul style="list-style-type: none"> Establish and manage a steward and custodian framework to deliver fundamental geospatial datasets Oversee, coordinate and audit the implementation of the steward and custodian framework Engage in collaborative efforts in the wider community Determine and rationalise fundamental geospatial themes and datasets Establish a monitoring framework for themes and datasets Promote the concept of stewardship and custodianship and their relevance to a spatial data infrastructure (SDI) Be the trusted advisor for the SDI Provide advice on appropriate standards Offer guidance for funding and pricing 	<ul style="list-style-type: none"> GEG GSOG Stewards Custodians Stewards Group Theme Community Groups Dataset Community Groups Geospatial Community (including SIBA) Users 	The New Zealand Geospatial Office (NZGO)
	Theme Leadership	Fundamental Data Theme Working at a systems and strategic level, taking a holistic view, and acting in the national interest. Championing a common aspirational perspective, promoting good practice, and coordinating activities to ensure best outcomes. Bringing the views of users to the table.	Steward <ul style="list-style-type: none"> Understand the theme at a strategic level, and the datasets within the theme Implement custodianship arrangements for datasets Oversee and coordinate activities across the theme and collaborate with other stewards in areas of common interest Communicate aspirational and policy directives with custodians Form and maintain strong relationships Promote the theme to the wider geospatial community Promote good practice management to custodians Be the trusted advisor for the theme Show leadership in developing and promoting access and interoperability standards Ensure appropriate funding arrangements are in place Audit the implementation of the framework across the theme 	<ul style="list-style-type: none"> NZGO Custodians Other Stewards Stewards Group Theme Community Group Dataset Community Groups Geospatial Community Users 	Single Agency <i>or</i> Theme Committee <i>or</i> No formal structure
Custodianship Custodians must implement data management practices on a day-to-day basis, as specified by the steward	Dataset Leadership	Fundamental Dataset Ensures that appropriate data management policies and standards are developed and maintained on behalf of the Crown and in keeping with a national benefits perspective.	Custodian (Leadership) <ul style="list-style-type: none"> Oversee and coordinate activities across the dataset Define QA standards and audit requirements of the dataset Safeguard the Government's interest in the use of its information Determine the funding model in conjunction with the steward Be a trusted advisor for the dataset Manage the dataset using good practice for its entire lifecycle Maintain conformance to appropriate agreed standards Ensure the dataset is described Ensure the dataset is stored and maintained according to defined policies and procedures Ensure the dataset is physically discoverable Ensure the dataset is physically accessible and available Ensure the dataset is archived according to Archives NZ guidelines at the end of its lifecycle 	<ul style="list-style-type: none"> Custodian (Delivery) NZGO Steward Other Custodians Dataset Community Group Theme Community Group Geospatial Community Users 	Single Agency (may or may not be the same as below)
	Dataset Delivery	Fundamental Dataset Responsible for the continued physical existence, availability, and integrity of the dataset for as long as is required.	Custodian (Delivery) <ul style="list-style-type: none"> Meet the QA standards and audit requirements of the dataset as set by the custodian (leadership) Safeguard the Government's interest in the use of its information Be a trusted advisor for the dataset Manage the dataset using good practice for its entire lifecycle Conform with appropriate agreed standards Physically acquire and/or create the dataset Describe the dataset, and specify and define the components used in the dataset schema Physically maintain the dataset Enable datasets to be physically discoverable Enable datasets to be physically accessible and available Archive the dataset according to Archives NZ guidelines at the end of its lifecycle 	<ul style="list-style-type: none"> Custodian (Leadership) NZGO Steward Other Custodians Dataset Community Group Geospatial Community Users 	Single Agency <i>or</i> Multiple Agencies (may or may not be the same as above)

4 Stewardship

4.1 What is stewardship

The New Zealand SDI's concept of stewardship is based on the principle that:

"Agencies are stewards of government-held data and information and must provide and require good practices which manage the data and information over their life cycle, including catering for technological obsolescence and long-term preservation and access. Good practices also include collaborating with other agencies and the public, facilitating access, strengthening awareness, and supporting international cooperation".⁶

As a comparison, the Australia and New Zealand Land Information Council (ANZLIC), define a National Sponsor (their equivalent of a steward) as "an agency having a special interest in ensuring that the national foundation datasets within a particular theme are widely available and of high quality."⁷

The role of ANZLIC's National Sponsor is to:

- consult with the community of users to disseminate information about the dataset, foster efficient use of the dataset, coordinate data collection to minimise duplication of effort, and provide leadership in developing standards for content, quality and transfer, and
- consult with and coordinate the activities of the custodians of the various datasets comprising the fundamental dataset to ensure that the datasets are collected, maintained and delivered in conformance with standards, specifications and user priorities consistent with the overall model for a national spatial data infrastructure.

Not all fundamental geospatial data is likely to be government-owned or held. For example, some datasets may be privately-owned and licensed for government use. Private ownership does not preclude dataset management in a manner consistent with the New Zealand Geospatial Strategy. However, it is likely that the stewardship of a data theme, regardless of whether it is Crown-owned or privately-owned, will be assigned to government agencies.

⁶ Principles for Managing Data and Information held by the New Zealand Government, approved by Cabinet on 8 August 2011 (CAB Min (11) 29/12 refers) (<https://www.ict.govt.nz/guidance-and-resources/open-government/new-zealand-data-and-information-management-principles/>)

⁷ The Australia and New Zealand Foundation Spatial Data Framework. ANZLIC, Edition 2 – April 2014 (http://www.anzlic.gov.au/_data/assets/pdf_file/0017/47321/FSDF_Booklet_edition_2_web.pdf)

4.2 Components of the NZ SDI

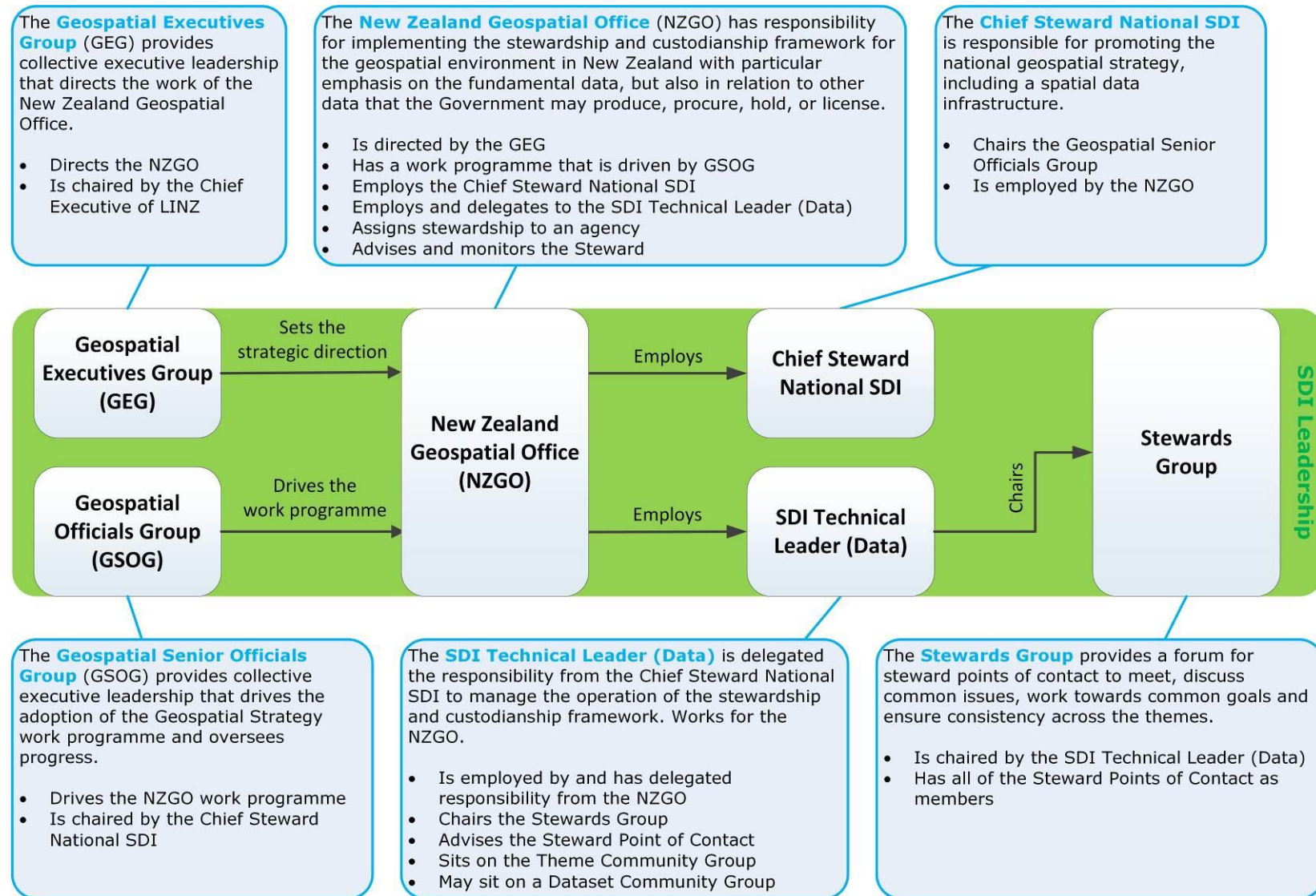
The NZGO has identified seven key components for the NZ SDI:

- **Data**
Organisations understand the wider value of their data. They manage and release it for reuse.
- **Standards**
Organisations are working to agreed standards in describing and releasing their data.
- **Access and services**
Organisations are releasing their data and creating services to enable end users to access it.
- **Investment**
Organisations invest and participate in developing an infrastructure to support geospatial information.
- **Capability**
Organisations grow their capability and capacity to contribute to an SDI.
- **Governance and responsibilities**
Organisations understand how they contribute to the Geospatial Strategy and have agreed work plans to achieve this.
- **Cross sector coordination**
All sectors recognise that they need to contribute to developing a national SDI and understand their role.

Responsibilities of stewardship can be linked to the components of the NZ SDI.

4.3 SDI Leadership

4.3.1 Roles and relationships



4.3.2 NZGO responsibilities

NZGO

NZGO is responsible for implementing, leading, and managing the stewardship and custodianship framework for the geospatial environment in New Zealand, with particular emphasis on fundamental datasets, but also in relation to other geospatial data that the Government may produce. NZGO is also responsible for ensuring that appropriate overarching policies, base standards, and processes are developed and maintained on behalf of the Crown.

The NZGO does not have a direct or hands-on role in managing a dataset throughout its lifecycle.

Steward and custodian framework



Establish and manage a steward and custodian framework to deliver fundamental datasets



- Develop policy and guidelines for stewards and custodians and
- Design standard processes and documentation for stewards and custodians

Oversee and coordinate the implementation of the steward and custodian framework

- Broker and negotiate new stewardship agreements for Chief Executive sign-off
- Review and approve custodian appointments as recommended by the steward
- Determine barriers to uptake of the steward and custodian framework
- Establish and maintain a register of stewards and custodians

Engage in collaborative efforts in the wider community

- Participate in the Stewards Group and Theme Community Groups

Audit



Audit the implementation of the steward and custodian framework across the geospatial community



- Evaluate and monitor the performance of steward and custodian agencies in the delivery of a dataset with a 'fit for purpose' level of quality agreed with users



- Report to Government on the performance of steward and custodian agencies in carrying out their responsibilities
- Review the appropriateness of stewards and custodians every five years (or as otherwise required)

* User community may include central/local government, CRIs, SOEs, business, academia, and representatives from the open data community, as appropriate

Fundamental data and themes



Determine and rationalise fundamental geospatial themes and datasets

- Identify and evaluate fundamental themes
- Identify and evaluate fundamental geospatial datasets
- Provide advice for the specification of needs and priorities for fundamental geospatial datasets



Establish a monitoring framework for themes and datasets

- Measure, monitor and review fundamental themes
- Measure, monitor and review fundamental geospatial datasets

Promotion



Promote the concept of stewardship and custodianship and their relevance to a spatial data infrastructure (SDI)



- Articulate an aspirational view for an SDI
- Form and maintain strong relationships with other influential central agencies to advocate for an SDI



Be the trusted advisor for the SDI

Standards



Provide advice, in consultation with the steward, custodian(s) and user community*, on appropriate access and interoperability standards for the dataset

Funding

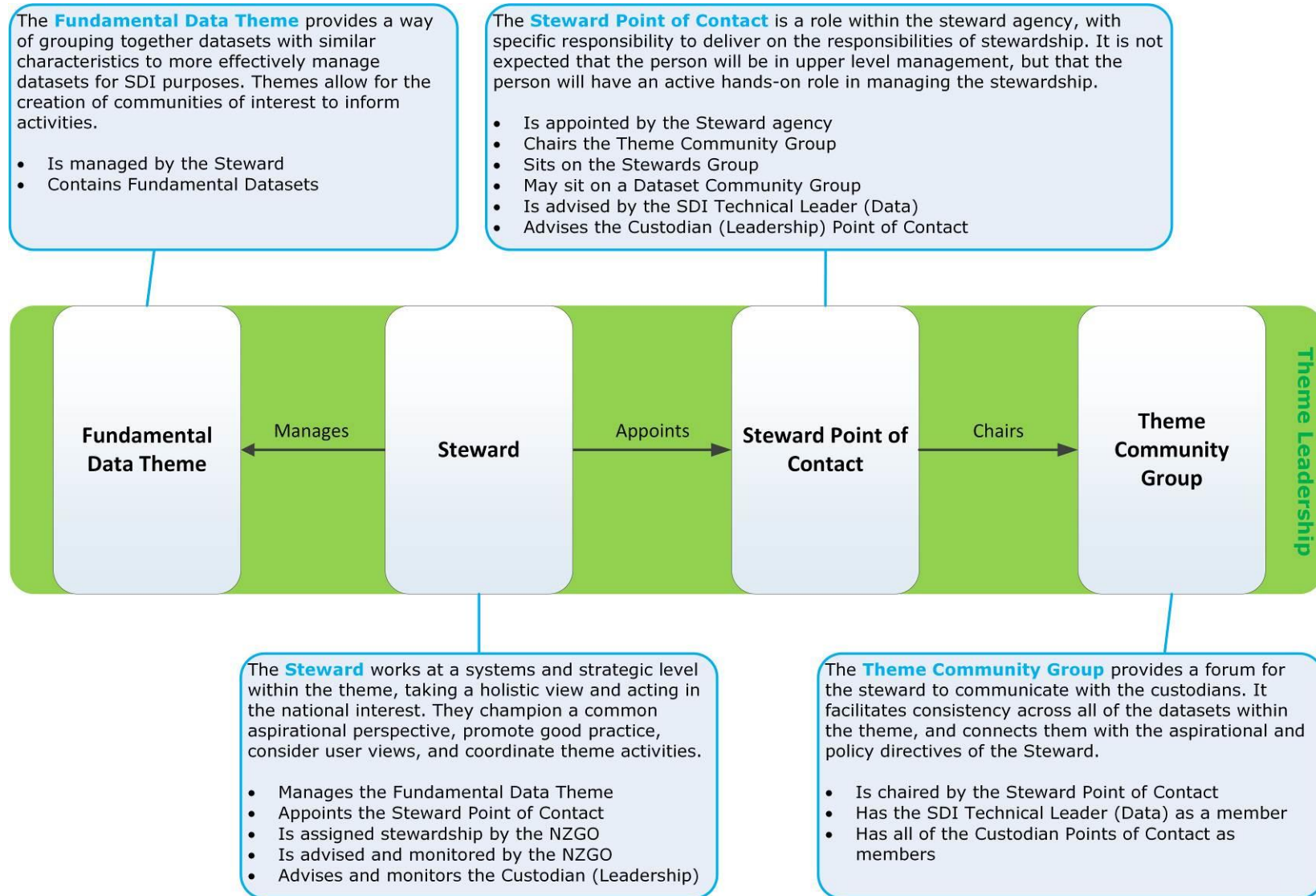


Offer guidance for funding and pricing

- Provide advice and assistance in determining viable funding mechanism(s) for collection
- Provide advice and assistance in determining viable pricing mechanism(s) for distribution

4.4 Theme Leadership

4.4.1 Roles and relationships



4.4.2 Steward responsibilities

Steward

Stewards are responsible for working at a systems and strategic level, taking a holistic view, and acting in the national interest. They champion a common aspirational perspective, promote good practice and coordinate activities to ensure best outcomes. Stewards also bring the views of users to the table.

Stewards lead a fundamental geospatial data theme, they do not have a direct or hands-on role in managing a dataset throughout its lifecycle.

Steward and custodian framework



Form and maintain strong relationships

- Form and maintain strong relationships with key agencies relevant to the theme
- Form and maintain strong relationships with NZGO



Implement custodianship arrangements for datasets

- Determine appropriate custodians for dataset leadership and formalise custodianship arrangements in conjunction with NZGO

Collaborate with other stewards and custodians in areas of common interest

- Participate in the Stewards Group
- Chair and convene the Theme Community Group

Promotion



Be the trusted advisor for the theme

- Promote the theme to users, stakeholders and the wider geospatial community



Safeguard the Government's interest in the use of its information

- Promote good practice data management policies to custodians
- Promote awareness of licensing options



Audit



Audit the implementation of the steward and custodian framework across the theme

- Evaluate and monitor the performance of custodian agencies in the delivery of a dataset with a 'fit for purpose' level of quality agreed with users
- Report to NZGO on the performance of custodian agencies in carrying out their responsibilities
- Review the appropriateness of custodians every five years (or as otherwise required)



Fundamental data and themes



Understand the theme at a strategic level

- Understand the current state of the theme
- Keep up to date with developments in the market
- Determine priorities, opportunities and barriers at a systems and strategic level
- Articulate an aspirational view for the theme with NZGO direction to ensure overall consistency
- Propose and plan future state(s) for the theme
- Seek opportunities for innovation



Understand datasets within the theme

- Review and update potentially fundamental geospatial datasets
- Rationalise and confirm fundamental geospatial datasets
- Improve understanding of fundamental geospatial datasets within the theme
- Review datasets to ensure ongoing relevance and completeness from a theme perspective

Oversee and coordinate activities across the theme

- Avoid duplication of datasets across the theme
- Ensure interoperability of datasets within the theme and across themes

Standards



Show leadership in the development and promotion of access and interoperability standards

Funding



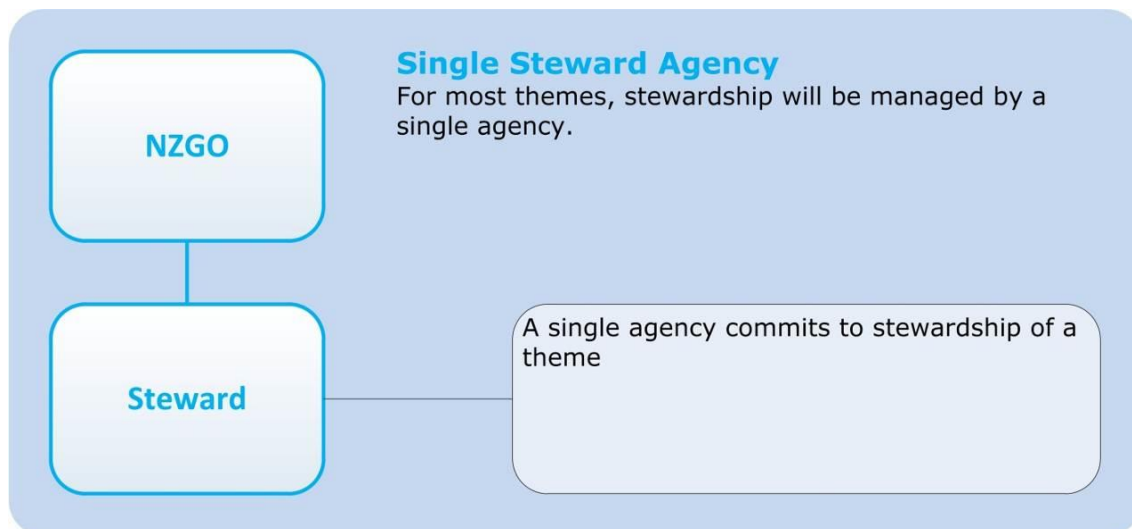
Determine / apply for funding for stewardship activities

Ensure appropriate funding arrangements are in place for datasets

- Assist in determining suitable funding models for datasets in conjunction with custodian(s)
- Provide support for custodians to secure funding

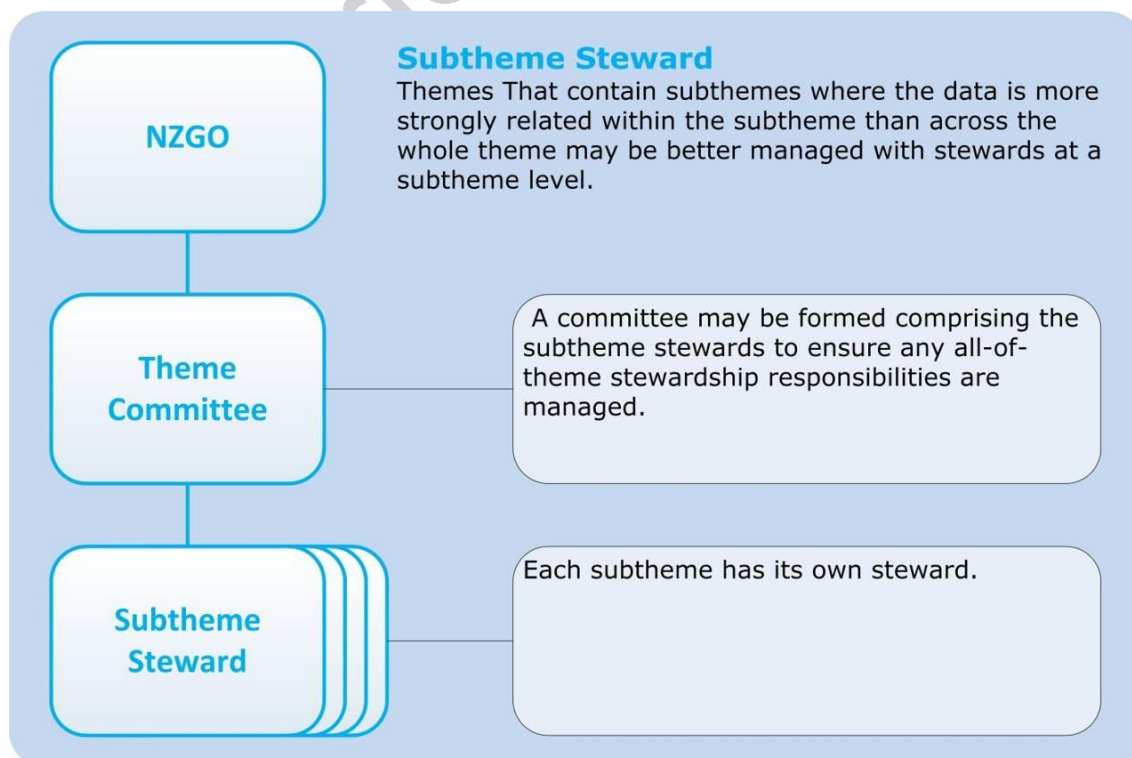
4.5 Theme management

For ease of management, datasets have been grouped into themes. Themes are managed by Stewards. There are several different ways stewardship may work, depending on the nature of the theme.



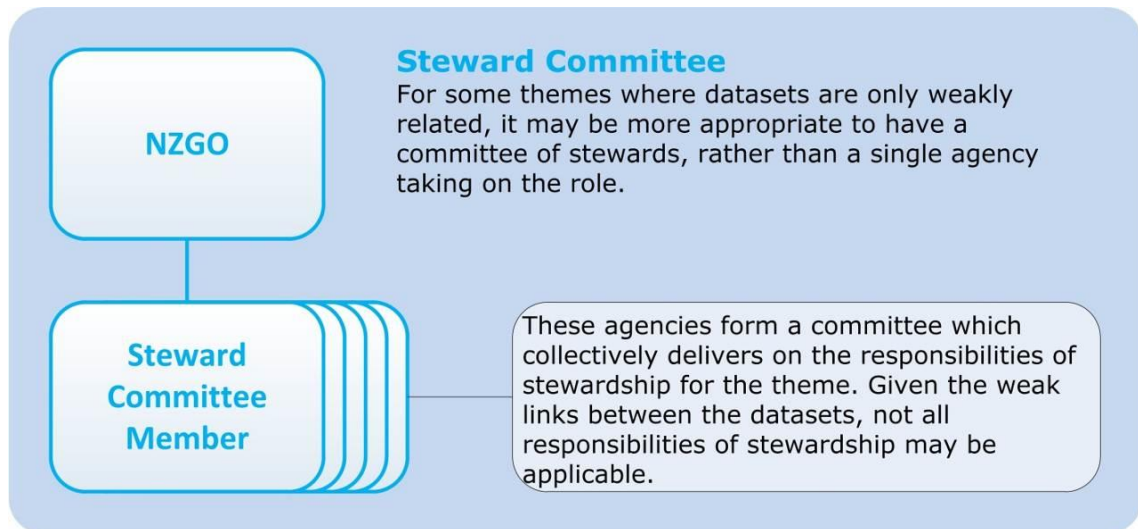
The following themes could be managed by a single steward agency:

- Positioning
- Cadastre and Property
- Address
- Elevation and Depth
- Imagery
- Geographic Names
- Administrative Boundaries

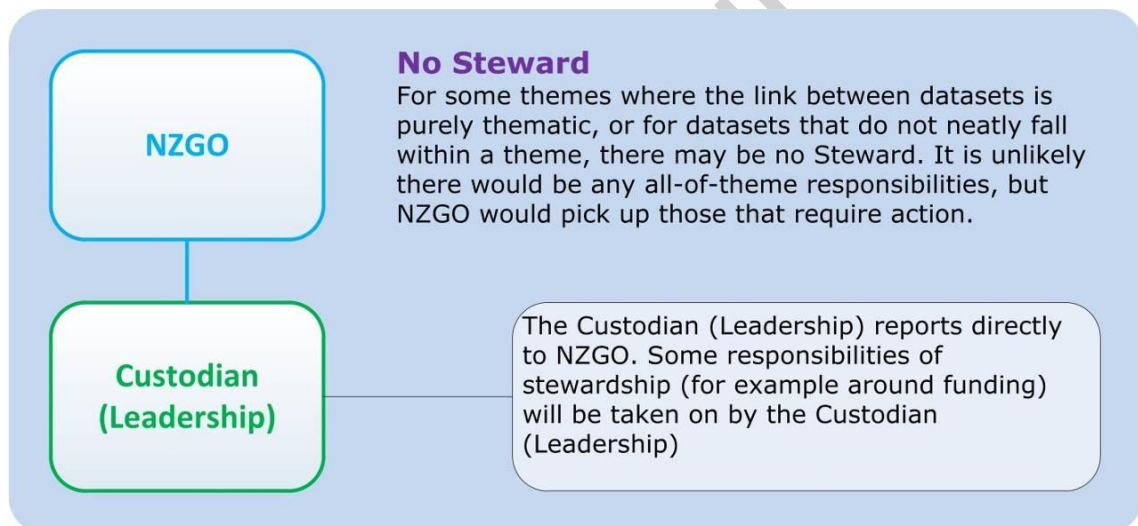


The following themes could be managed by subtheme stewards:

- Transport (Road, Rail, Sea, Air)
- Water (Onshore, Coastal Zone, Offshore)



The Land Use and Land Cover theme could be managed by a steward committee.



The Land Use and Land Cover theme could be managed without a steward.

4.6 Appointment as a steward

Any organisation in New Zealand can be assigned stewardship. Stewardship is assigned on an open-ended basis.

A review of stewardship of a data theme may be requested by the agency holding the stewardship, or by the NZGO, at any time.

At a minimum, stewardship will be reviewed every five years.

4.6.1 Attributes of a steward

Potential stewards will be assessed against the following attributes:

Preference to public sector agencies

Preference will be given to government agencies for stewardship roles, due to:

- the requirement to act in the national interest, and
- the lack of a revenue stream to fund stewardship activities.

A private entity may be considered if it can clearly demonstrate:

- that it could meet these requirements, and
- it would have the support of the geospatial community.

Understanding

Proposed stewards should be able to demonstrate their understanding of:

- the Geospatial Strategy
- the stewardship responsibilities
- the differing roles of stewards and custodians
- the policies and procedures that are in place to support the New Zealand SDI
- operating in an open and transparent manner
- the need to provide equal opportunity to all for delivery of services, and
- the need to collaborate with and guide custodians, other stewards, NZGO, users, and others as required.

Capacity

Proposed stewards should be able to demonstrate that:

- they listen to and understand their stakeholders
- they have a strategic need for, or interest in, the datasets within the theme
- there is an alignment between the theme and the agency's objectives
- they are willing and able to meet the stewardship responsibilities
- they have the ability to undertake strategy and policy work, and
- they have been assessed against the Geospatial Maturity Model and Monitoring (GM3) Framework and are at level 3 or higher (Level 3 indicates an organisation has an Integrated⁸ level of geospatial maturity).

⁸ Defined as: Responsive, leveraging, multiple standards, "solves line of business problems".

4.6.2 Ratification of stewardship

To formalise the commitment to stewardship, potential stewards should submit written proposals to NZGO. Proposals should describe the intended approach to the role and the organisation's match with the attributes in section 4.6.3.

NZGO will review proposals on their merits and select the proposal which, in the opinion of NZGO, presents the strongest case and is a good fit with the required attributes. NZGO will recommend to the Chief Executive Officer (CE) of LINZ that they assign stewardship to that organisation.

NZGO reserves the right not to recommend an appointment be made.

The CE's decision is notified to all the organisations that have sought stewardship.

4.6.3 Point of contact and Open Data Champion

The steward organisation selects a staff member to be the steward point of contact, and notifies NZGO.

If the steward has an Open Data Champion, the steward point of contact should inform the Open Data Champion of the commitment to stewardship.

4.7 Removal of stewardship

NZGO will work collaboratively with the steward so as to ensure the success of the stewardship.

However, NZGO reserve the right to recommend to the CE of LINZ the removal of steward responsibilities from an organisation. Once approved by the CE of LINZ, NZGO will notify the CE of the steward organisation of the removal of stewardship.

5 Custodianship

5.1 What is custodianship

The New Zealand Geospatial SDI's concept of custodianship is based on the principle that:

"Custodians must implement these (data management) practices on a day-to-day basis, as specified by the steward."⁹

As a comparison, ANZLIC defines a Custodian as:

An agency recognised as having the responsibility to ensure that a fundamental dataset is collected and maintained according to specifications and priorities determined by consultation with the user community, and made available to the community under conditions and in a format that conform with standards and policies.

5.2 Geospatial data lifecycle

The concept of an information lifecycle originated from records management for managing physical records. It was then adapted for digital records and digital information, and developed into the information lifecycle.

The concept of an information lifecycle, as it has been developed for digital records management, is also relevant for geospatial data.

For Archives NZ, the key pillars of public record management are Create, Maintain, Access, and Dispose. These are mandated in the Public Records Act 2005¹⁰.

The Federal Geographic Data Committee in the USA modified the information lifecycle, and identified Define, Inventory/Evaluate, Obtain, Access, Maintain, Use/Evaluate, and Archive as the core elements of a geospatial data lifecycle¹¹.

In 2006, esri released a paper that described the elements of a geospatial lifecycle as Requirements, Develop, QA, Metadata Review, Production, Maintenance, Retirement¹².

Some of the responsibilities of custodianship can be linked to stages in the geospatial data lifecycle.

In the context of a data lifecycle, geospatial data broadly falls into two main types:

- Transactional datasets, and
- Non-transactional datasets.

⁹ Principles for Managing Data and Information held by the New Zealand Government, approved by Cabinet on 8 August 2011 (CAB Min (11) 29/12 refers) (<https://www.ict.govt.nz/guidance-and-resources/open-government/new-zealand-data-and-information-management-principles/>)

¹⁰ <http://www.archives.govt.nz/advice/public-records-act-2005>

¹¹ <https://www.fgdc.gov/policyandplanning/a-16/stages-of-geospatial-data-lifecycle-a16.pdf>

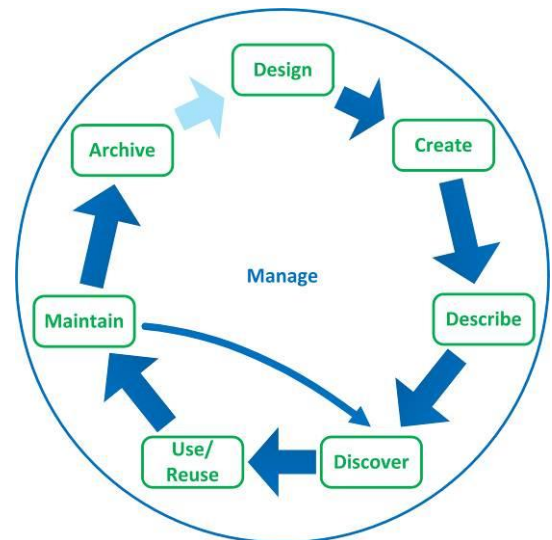
¹² Paper 1295 from the esri User Conference 2006 (not available online)

5.2.1 Transactional

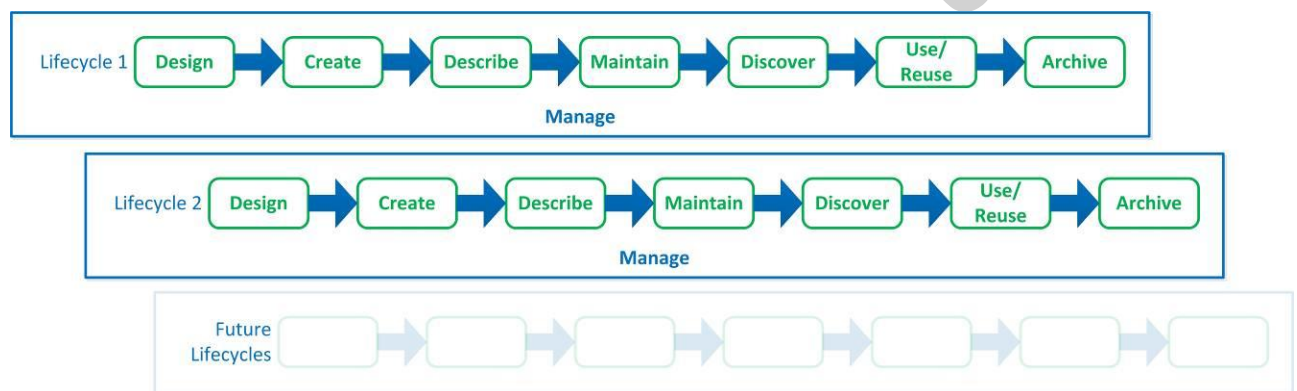
A transactional dataset is updated and maintained on a regular (often daily) basis throughout the lifecycle of the dataset. The dataset has a temporal dimension. The lifecycle of the dataset may be very long (or effectively infinite) if the business need for the dataset continues to exist.

Transactional datasets are most likely to be vector data. Examples are Road Networks and Addresses.

Custodianship will probably be open-ended, reflecting the long lifecycle and ongoing maintenance of the dataset.



5.2.2 Non-transactional



A non-transactional dataset, once acquired and processed, does not change and is not updated. The dataset represents a snapshot of a moment in time. The lifecycle is often relatively short and defined (less than five years), and typically ends when the dataset is archived and replaced by a newly acquired and processed dataset.

Non-transactional datasets are most likely to be raster data. An example is imagery.

Custodianship may be assigned for a fixed term or a single lifecycle. For example, an agency may be assigned custodianship of an imagery dataset acquired and processed in one flying season. An imagery dataset acquired over the same area in a subsequent flying season may have custodianship assigned to a different agency.

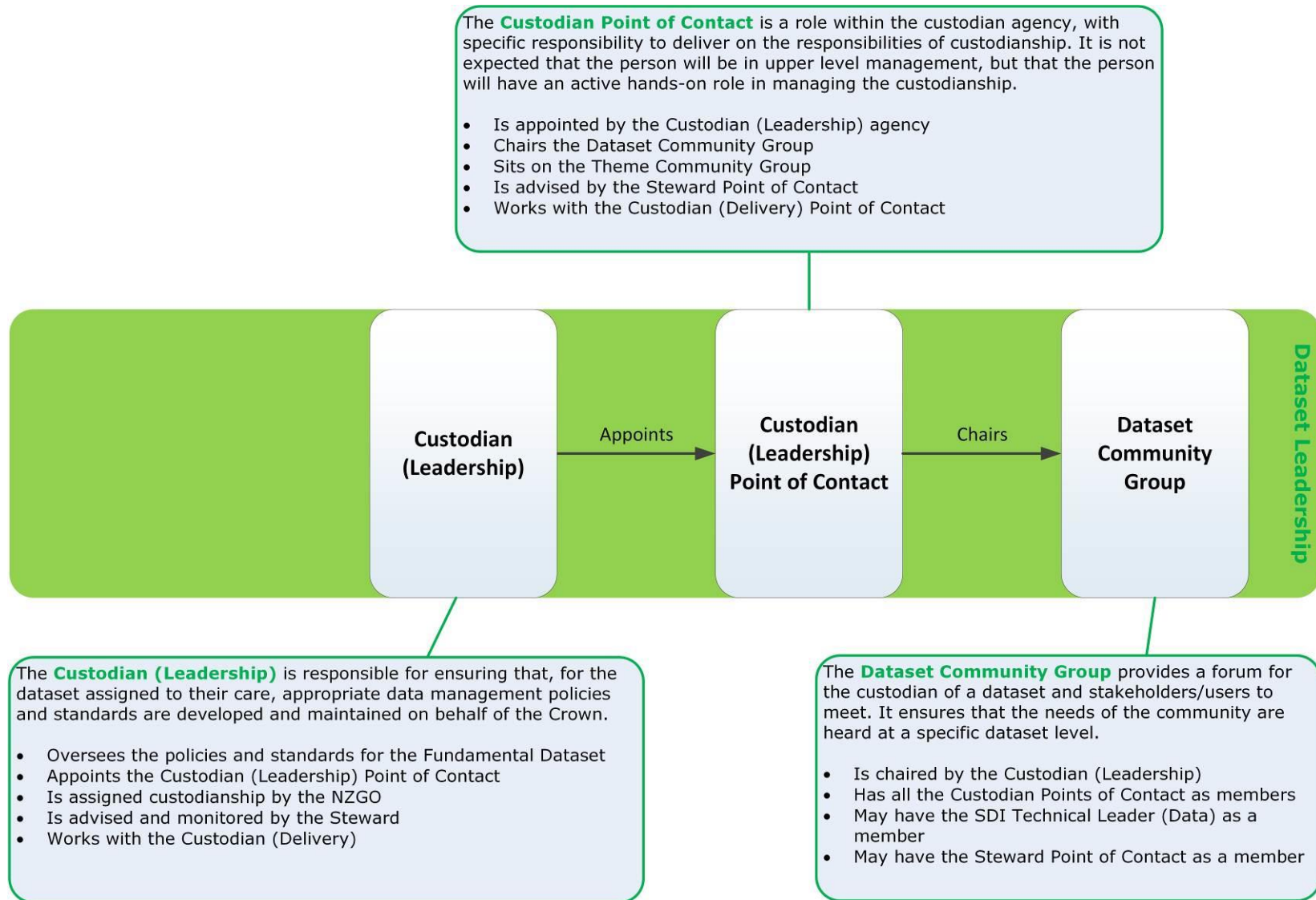
5.2.3 Enduring nature

It is a characteristic of some geospatial datasets (particularly non-transactional datasets) that while interest in the dataset reduces immediately after the lifecycle has ended it will often increase again after a period of time has elapsed.

This enduring interest is driven by the comparative analysis nature of geospatial datasets. The renewed interest in the dataset is often persistent and may outlive the original stewardship and custodianship arrangements.

5.3 Dataset leadership

5.3.1 Roles and relationships



5.3.2 Custodian (Leadership) responsibilities

Custodian (Leadership)

Custodians undertaking the leadership role are responsible for ensuring that appropriate data management policies and standards are developed and maintained on behalf of the Crown and in keeping with a national benefits perspective.

Where there are sole statutory responsibilities for a dataset, it is recognised that those statutory responsibilities take precedence.

Steward and custodian framework

Collaborate with the steward and other custodians working on the theme

- Participate in the Theme Community Group
- Chair and convene a Dataset Community Group

Fundamental data and themes

Understand the dataset at an operational level

- Understand the current state of the dataset

Understand the dataset from a user needs perspective

- Articulate user needs and vision for the dataset
- Keep up to date with activities taking place within their theme and in other themes with a common interest

Oversee and coordinate activities across the dataset

- Avoid duplication of effort and capture within the dataset

Funding

Determine the suitable funding model in conjunction with the steward

Where appropriate:

- Secure funding
- Assist funding agencies to secure funding

Quality

Define the quality standards and audit requirements of the dataset in collaboration with the user community

- Develop quality control and quality assurance policies
- Evaluate datasets under their agency's custodianship to ensure they conform to the agreed quality
- Regularly audit the quality of the datasets, and report on the results of any audits conducted
- Regularly test the services provided by custodians (delivery) and report to the NZGO on the results of those tests

Privacy and Security

Safeguard the Government's interest in the use of its information

- Develop appropriate security policy and procedures to protect the privacy of any personal data
- Select appropriate licencing agreements or letters of understanding to protect privacy and confidentiality and interpretation of the information

Promotion

Be a trusted advisor for the dataset

- Promote the dataset to users, stakeholders and the wider geospatial community
- Promote the proper use of the dataset to discourage duplication or error through ignorance

Transactional Lifecycle

Design

Maintain conformance to appropriate national, international, or otherwise agreed standards

- Develop, in consultation with NZGO, the steward and the user community, appropriate community schemas for the management and use of the datasets in their care
- Regularly review the agreed standards to ensure that the needs of the community continue to be met
- Raise awareness of agreed standards in the user community

Examples of appropriate standards include the ISO TC211/19100¹ suite, OGC, ANZLIC, and national standards (AS/NZS standards).

Describe

Ensure the dataset is described

- Provide guidance about metadata and related standards, tailored to the dataset under their custodianship
- Regularly test the metadata provided by custodians (delivery) and report on the results of those tests

It is expected that metadata will conform to the ANZLIC² profile of the ISO 19115 standard. However, some user communities may prefer to use a profile of ISO 19115 tailored to their community's specific needs.

Archive

Ensure the dataset is archived according to Archives NZ guidelines at the end of its lifecycle

- Establish appropriate archiving policy and procedures
- Assist custodians (delivery) to implement the processes and procedures
- Monitor and review the implementation of processes and procedures on a regular basis
- Update processes and procedures on a regular basis

Maintain

Ensure the dataset is stored and maintained according to defined policies and procedures

- Establish appropriate storage and maintenance policy and procedures
- Assist custodians (delivery) to implement the processes and procedures
- Monitor and review the implementation of processes and procedures on a regular basis
- Update processes and procedures on a regular basis

Use/Reuse

Ensure the dataset is physically accessible and available

- Establish processes and procedures so that datasets are accessible and readily available in a manner consistent with the New Zealand Geospatial Strategy
- Assist custodians (delivery) to implement the processes and procedures
- Monitor and review the implementation of processes and procedures on a regular basis
- Update processes and procedures on a regular basis

Ensure interoperability with other datasets within the theme, and in other themes

Discover

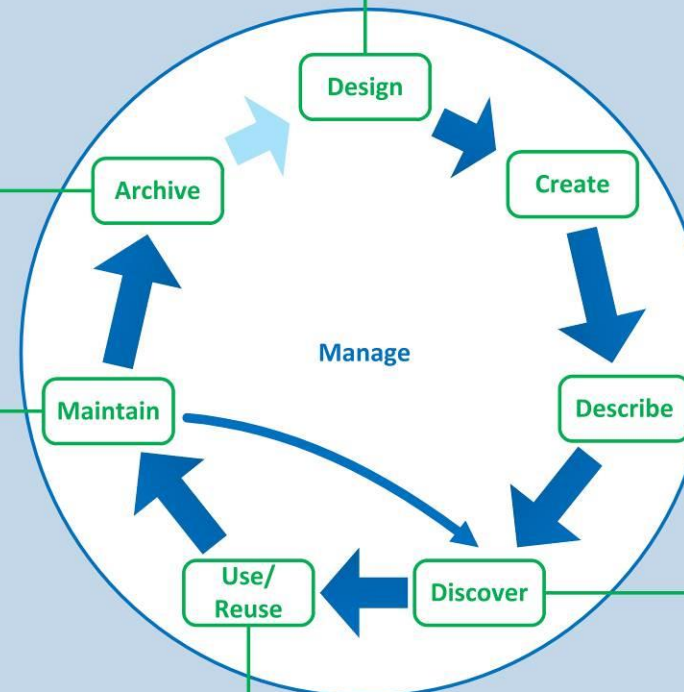
Ensure the dataset is physically discoverable

- Establish processes and procedures so that datasets are discoverable in a manner consistent with the New Zealand Geospatial Strategy
- Assist custodians (delivery) to implement the processes and procedures
- Monitor and review the implementation of processes and procedures on a regular basis
- Update processes and procedures on a regular basis

Manage

Manage the datasets using good practice, for the entire lifecycle of the dataset

- Work with the steward to identify appropriate custodians (delivery)
- Work with NZGO, stewards, custodians (delivery), and the user community to agree data needs and priorities for the dataset
- Coordinate custodians (delivery) to deliver a dataset that meets the needs of the user community
- Regularly review the agreed needs and priorities to ensure that the needs of the community continue to be met



1. TC211 is the technical committee of ISO responsible for standardisation in the field of digital geographic information
 2. Australia and New Zealand Land Information Council

Custodian (Leadership)

Custodians undertaking the leadership role are responsible for ensuring that appropriate data management policies and standards are developed and maintained on behalf of the Crown and in keeping with a national benefits perspective.

Where there are sole statutory responsibilities for a dataset, it is recognised that those statutory responsibilities take precedence.

Steward and custodian framework

Collaborate with the steward and other custodians working on the theme

- Participate in the Theme Community Group
- Chair and convene a Dataset Community Group

Fundamental data and themes

Understand the dataset at an operational level

- Understand the current state of the dataset

Understand the dataset from a user needs perspective

- Articulate user needs and vision for the dataset
- Keep up to date with activities taking place within their theme and in other themes with a common interest

Oversee and coordinate activities across the dataset

- Avoid duplication of effort and capture within the dataset

Funding

Determine the suitable funding model in conjunction with the steward

Where appropriate:

- Secure funding
- Assist funding agencies to secure funding

Quality

Define the quality standards and audit requirements of the dataset in collaboration with the user community

- Develop quality control and quality assurance policies
- Evaluate datasets under their agency's custodianship to ensure they conform to the agreed quality
- Regularly audit the quality of the datasets, and report on the results of any audits conducted
- Regularly test the services provided by custodians (delivery) and report to the NZGO on the results of those tests

Privacy and Security

Safeguard the Government's interest in the use of its information

- Develop appropriate security policy and procedures to protect the privacy of any personal data
- Select appropriate licencing agreements or letters of understanding to protect privacy and confidentiality and interpretation of the information

Promotion

Be a trusted advisor for the dataset

- Promote the dataset to users, stakeholders and the wider geospatial community
- Promote the proper use of the dataset to discourage duplication or error through ignorance

Non-Transactional Lifecycle

Design

Maintain conformance to appropriate national, international, or otherwise agreed standards

- Develop, in consultation with NZGO, the steward and the user community, appropriate community schemas for the management and use of the datasets in their care
- Regularly review the agreed standards to ensure that the needs of the community continue to be met
- Raise awareness of agreed standards in the user community

Examples of appropriate standards include the ISO TC211/19100¹ suite, OGC, ANZLIC, and national standards (AS/NZS standards).

Maintain

Ensure the dataset is stored and maintained according to defined policies and procedures

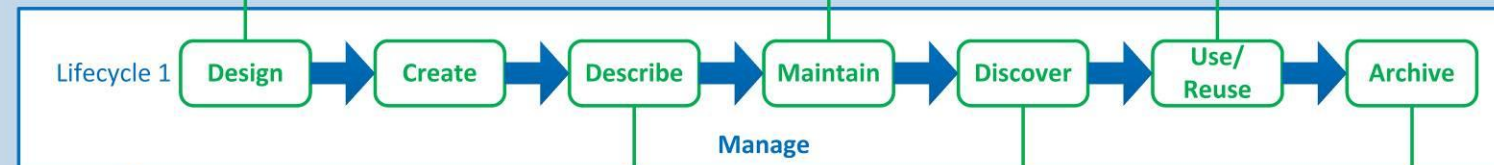
- Establish appropriate storage and maintenance policy and procedures
- Assist custodians (delivery) to implement the processes and procedures
- Monitor and review the implementation of processes and procedures on a regular basis
- Update processes and procedures on a regular basis

Use/Reuse

Ensure the dataset is physically accessible and available

- Establish processes and procedures so that datasets are accessible and readily available in a manner consistent with the New Zealand Geospatial Strategy
- Assist custodians (delivery) to implement the processes and procedures
- Monitor and review the implementation of processes and procedures on a regular basis
- Update processes and procedures on a regular basis

Ensure interoperability with other datasets within the theme, and in other themes



Manage

Manage the datasets using good practice, for the entire lifecycle of the dataset

- Work with the steward to identify appropriate custodians (delivery)
- Work with NZGO, stewards, custodians (delivery), and the user community to agree data needs and priorities for the dataset
- Coordinate custodians (delivery) to deliver a dataset that meets the needs of the user community
- Regularly review the agreed needs and priorities to ensure that the needs of the community continue to be met

Describe

Ensure the dataset is described

- Provide guidance about metadata and related standards, tailored to the dataset under their custodianship
- Regularly test the metadata provided by custodians (delivery) and report on the results of those tests

It is expected that metadata will conform to the ANZLIC² profile of the ISO 19115 standard. However, some user communities may prefer to use a profile of ISO 19115 tailored to their community's specific needs.

Discover

Ensure the dataset is physically discoverable

- Establish processes and procedures so that datasets are discoverable in a manner consistent with the New Zealand Geospatial Strategy
- Assist custodians (delivery) to implement the processes and procedures
- Monitor and review the implementation of processes and procedures on a regular basis
- Update processes and procedures on a regular basis

Archive

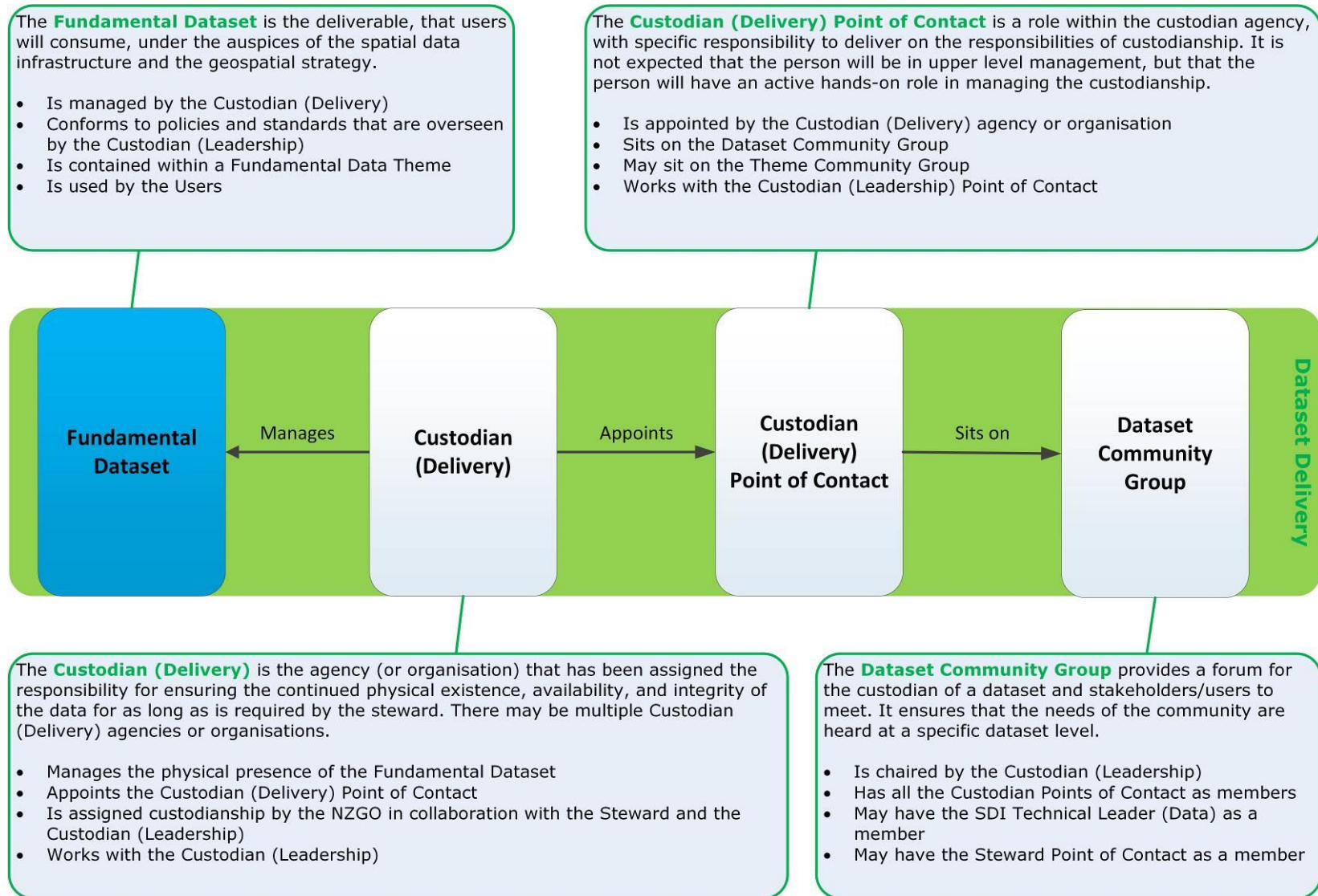
Ensure the dataset is archived according to Archives NZ guidelines at the end of its lifecycle

- Establish appropriate archiving policy and procedures
- Assist custodians (delivery) to implement the processes and procedures
- Monitor and review the implementation of processes and procedures on a regular basis
- Update processes and procedures on a regular basis

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 2. Australia and New Zealand Land Information Council

5.4 Dataset delivery

5.4.1 Roles and relationships



5.4.1 Custodian (Delivery) responsibilities

Custodian (Delivery)

Custodians undertaking the delivery role are responsible for the continued physical existence, availability, and integrity of the dataset for as long as is required by the custodian undertaking the leadership role.

Where there are sole statutory responsibilities for a dataset, it is recognised that those statutory responsibilities take precedence.

Transactional Lifecycle

Design

Conform with appropriate national, international, or other standards and schemas as determined by the custodian (leadership)

- Implement appropriate geospatial data processing specifications required to interface with the New Zealand SDI
- Implement data models, schemas and services that conform to appropriate national, international, or otherwise agreed standards

Examples of appropriate standards include the ISO TC211/19100¹ suite, OGC, ANZLIC, and national standards (AS/NZS standards).

Create

Physically acquire and/or create the datasets under their custodianship

- Apply appropriate licencing to the dataset

Archive

Archive the dataset according to Archives NZ guidelines at the end of its lifecycle

- Implement appropriate archiving procedures

Maintain

Physically maintain the dataset

- Develop a maintenance plan for the dataset
- Maintain the dataset in accordance with the maintenance plan
- Regularly update the maintenance plan to ensure ongoing improvement
- Publish a delivery schedule for revisions of the dataset
- Define the update frequency for the dataset

Use/Reuse

Enable datasets to be physically accessible and available

- Stand up OGC compliant web services (other methods of access may also be provided as long as those methods are consistent with the New Zealand Geospatial Strategy) for delivery of datasets
- Deliver dataset via above methods meeting availability standards as set by custodian (leadership)

Ensure interoperability with other datasets within the theme, and in other themes

Manage

Manage the datasets using good practice, for the entire life cycle of the dataset

- Utilise appropriate operating procedures to support the existence of the dataset
- Put in place appropriate physical infrastructure to support the dataset
- Regularly review and update physical infrastructure and operating procedures

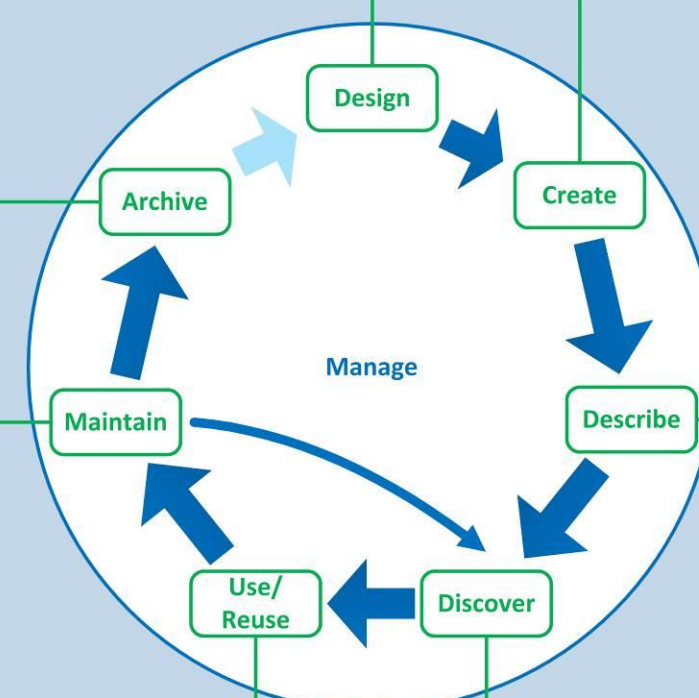
Describe

Describe the dataset

- Create and maintain metadata that complies with the ANZLIC² Metadata Profile and Guidelines and describes the dataset in their care
- Provide full and frank quality statements about metadata
- Structure metadata as well-formed xml

Specify and define the components³ used in the dataset schema

- Create and maintain a data dictionary for the dataset
- Create and maintain a schedule of changes to the data dictionary



Steward and custodian framework

Collaborate with the steward and other custodians working on the theme

- Participate in the Theme Community Group
- Participate in the Dataset Community Group

Fundamental data and themes

Understand the dataset at an operational level

- Understand the current state of the dataset

Understand the dataset from a user needs perspective

- Understand the user needs and vision for the dataset
- Keep up to date with activities taking place within their theme

Deliver the dataset

- Work to deliver the dataset in an efficient and transparent manner

Quality

Meet the quality standards and audit requirements of the dataset as set by the custodian (Leadership)

- Provide data quality and accuracy statements to the custodian (leadership) on an annual basis
- Record an audit trail such that changes or updates to the dataset can be tracked back to source and verified, including time stamping
- Test quality control and quality assurance

Privacy and Security

Safeguard the Government's interest in the use of its information

- Implement appropriate licencing agreements or letters of understanding to protect privacy, confidentiality and interpretation of the information
- Provide a level of appropriate security to protect the privacy of any personal data within the dataset

Promotion

Be a trusted advisor for the dataset

- Keep up to date with activities taking place within their theme and in other themes with a common interest
- Promote the dataset to users, stakeholders and the wider geospatial community

1. TC211 is the technical committee of ISO responsible for standardisation in the field of digital geographic information

2. Australia and New Zealand Land Information Council

3. Components may include object classes, fields, attribute values, look-up tables and others as appropriate for interpretation of the dataset

Custodian (Delivery)

Custodians undertaking the delivery role are responsible for the continued physical existence, availability, and integrity of the dataset for as long as is required by the custodian undertaking the leadership role.

Where there are sole statutory responsibilities for a dataset, it is recognised that those statutory responsibilities take precedence.

Steward and custodian framework

Collaborate with the steward and other custodians working on the theme

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- Participate in the Dataset Community Group

Fundamental data and themes

Understand the dataset at an operational level

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- Work to deliver the dataset in an efficient and transparent manner

Quality

Meet the quality standards and audit requirements of the dataset as set by the custodian (Leadership)

- Provide data quality and accuracy statements to the custodian (leadership) on an annual basis
- Record an audit trail such that changes or updates to the dataset can be tracked back to source and verified, including time stamping
- Test quality control and quality assurance

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Safeguard the Government's interest in the use of its information

- Implement appropriate licencing agreements or letters of understanding to protect privacy, confidentiality and interpretation of the information
- Provide a level of appropriate security to protect the privacy of any personal data within the dataset

Promotion

Be a trusted advisor for the dataset

- Keep up to date with activities taking place within their theme and in other themes with a common interest
- Promote the dataset to users, stakeholders and the wider geospatial community

Non-Transactional Lifecycle

Design

Conform with appropriate national, international, or other standards and schemas as determined by the custodian (leadership)

- Implement appropriate geospatial data processing specifications required to interface with the New Zealand SDI
- Implement data models, schemas and services that conform to appropriate national, international, or otherwise agreed standards

Examples of appropriate standards include the ISO TC211/19100¹ suite, OGC, ANZLIC, and national standards (AS/NZS standards).

Describe

Describe the dataset

- Create and maintain metadata that metadata that complies with the ANZLIC² Metadata Profile and Guidelines and describes the dataset in their care
- Provide full and frank quality statements about metadata
- Structure metadata as well-formed xml

Specify and define the components³ used in the dataset schema

- Create and maintain a data dictionary for the dataset
- Create and maintain a schedule of changes to the data dictionary

Discover

Enable datasets to be physically discoverable

- Deliver metadata for harvesting into spatial data infrastructure catalogues compatible with automated harvesting requirements

Archive

Archive the dataset according to Archives NZ guidelines at the end of its lifecycle

- Implement appropriate archiving procedures

Lifecycle 1

Design

Create

Describe

Maintain

Discover

Use/Reuse

Archive

Manage

Manage

Manage the datasets using good practice, for the entire life cycle of the dataset

- Utilise appropriate operating procedures to support the existence of the dataset
- Put in place appropriate physical infrastructure to support the dataset
- Regularly review and update physical infrastructure and operating procedures

Create

Physically acquire and/or create the dataset

- Apply appropriate licencing to the dataset

Maintain

Physically maintain the dataset

- Develop a maintenance plan for the dataset
- Maintain the dataset in accordance with the maintenance plan
- Regularly update the maintenance plan to ensure ongoing improvement
- Publish a delivery/acquisition schedule for replacement of the dataset
- Define the update frequency for the dataset

Use/Reuse

Enable datasets to be physically accessible and available

- Stand up OGC compliant web services (other methods of access may also be provided as long as those methods are consistent with the New Zealand Geospatial Strategy) for delivery of datasets
- Deliver dataset via above services meeting availability standards as set by custodian (leadership)

Ensure interoperability with other datasets within the theme, and in other themes

1. TC211 is the technical committee of ISO responsible for standardisation in the field of digital geographic information

2. Australia and New Zealand Land Information Council

3. Components may include object classes, fields, attribute values, look-up tables and other as appropriate for interpretation of the dataset

5.5 Dataset management

Datasets are managed by Custodians. Custodians are directed by the steward of the theme within which the dataset lies (or NZGO should there be no steward).

There are numerous ways in which custodianship may work. The most likely situations are:




Custodian (Leadership and Delivery)

Single Custodian (Leadership and Delivery)
For most nationally collected datasets, there will be one Custodian (Leadership) and one Custodian (Delivery).

Both the leadership and delivery roles may be held by the same agency.

This is particularly likely for datasets with a statutory or regulatory function, or for datasets that are owned and managed by the private sector.



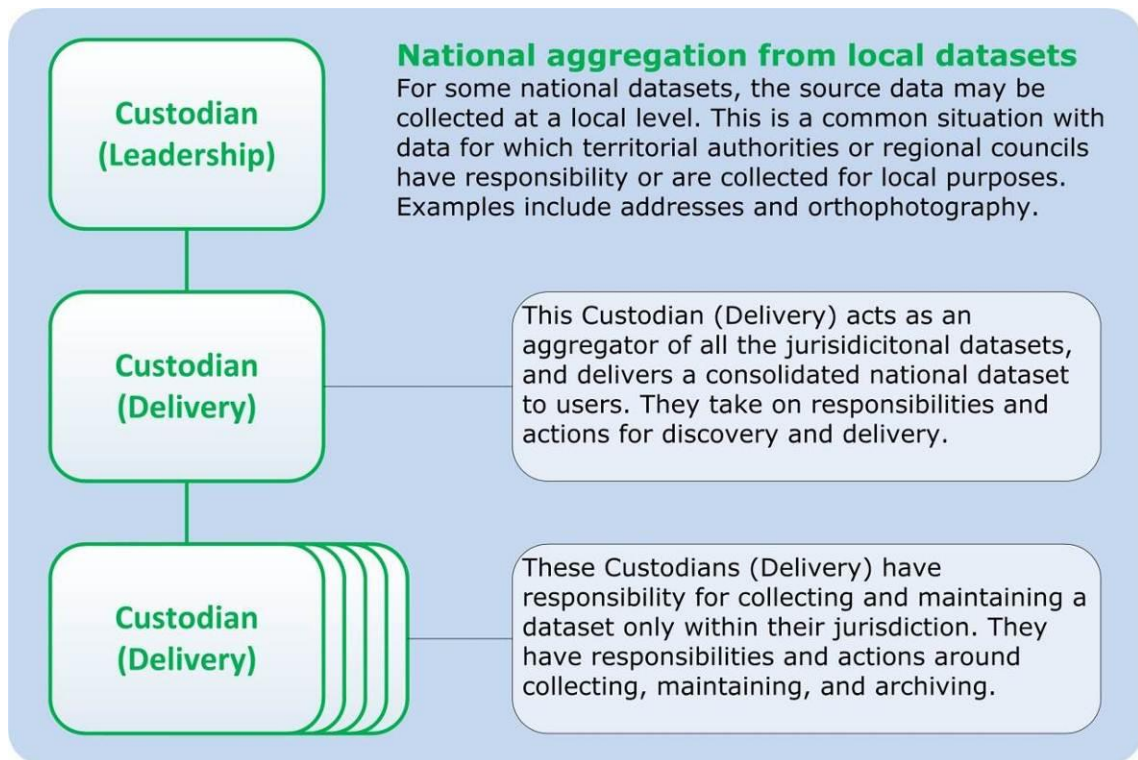
Custodian (Leadership)

Custodian (Delivery)

**Single Custodian (Leadership)
Single Custodian (Delivery)**
For most nationally collected datasets, there will be one Custodian (Leadership) and one Custodian (Delivery).

These two custodianship roles may be held by separate agencies.

An example is where a leadership custodian chooses to contract out delivery to a private sector company



National aggregation from local datasets may require some flexibility around roles and relationships, taking into account the resources and wishes of all parties.

A custodian (leadership) considering options for access, availability and re-use may find it is not practical or desirable to achieve a single consensus across all custodians (delivery).

Larger custodians (delivery) may be able to resource their own infrastructure for access, distribution, re-use and interoperability services. Smaller custodians (delivery) may not have the resource to provide those services.

Other options for nationally aggregated datasets may be:

- ensure each custodian (delivery) is able to provide the services themselves. The custodian (leadership) works with each custodian (delivery) to ensure they are able to adequately provide the required services themselves.
- establish a shared service for those who wish to use it. Custodians (delivery) may opt to use the shared service, or may prefer to provide the service themselves. The shared service provider may charge a subscription fee to custodians (delivery) for use of the service. A dedicated custodian (delivery) may be appointed to fulfill this role.

5.6 Term of custodianship

The term of a custodianship may be assigned in two different ways:

Fixed term

A fixed term assignment applies to:

- a single lifecycle of non-transactional datasets; or
- transactional datasets with short lifecycles (of, say, a few months).

An example of a dataset that may be appropriate for a fixed term custodianship is a raster dataset like imagery where the imagery is re-acquired every few years.

Open-ended

An open-ended assignment applies to:

- transactional datasets that have long lifecycles e.g. vector datasets like addresses or road networks; or
- non-transactional datasets where the re-acquisition cycle is relatively short e.g. aerial imagery (say, captured from a UAV) re-acquired every few months.

A review of custodianship of a dataset may be requested by the agency holding the custodianship, or by the steward, or by the NZGO, at any time.

At a minimum, custodianship will be reviewed every five years.

5.7 Appointment as a custodian (leadership)

Custodianship (leadership) is most likely to be assigned on an open-ended basis. However, there may be a small number of situations where a fixed term assignment may be made.

Any organisation in New Zealand can be assigned custodianship (leadership).

A private company may hold both custodian roles (leadership and delivery) for a dataset where, for example, it owns the copyright on a dataset.

Where leadership and delivery roles are both being sought by an organisation the fit for both roles will be considered at the same time.

5.7.1 Attributes of a custodian (leadership)

Potential custodians (leadership) will be assessed against the following attributes:

Understanding

Proposed custodians (leadership) should be able to demonstrate their understanding of:

- the policies and procedures that are in place to support the New Zealand SDI,
- operating in an open and transparent manner,
- the custodianship (leadership) responsibilities,
- the differing roles of stewards and custodians,
- the need to collaborate with the steward, custodians (both leadership and delivery), NZGO, users, and others as required, and
- the need for continued improvement in the quality of the dataset.

Capacity

Proposed custodians (leadership) should be able to demonstrate that:

- they have an appropriate level of geospatial technical maturity,
- they have an operational need for, or interest in, the dataset,
- there is an alignment between the provision of the dataset and the organisation's objectives,
- they are willing and able to meet the custodianship (leadership) responsibilities, and

-
- they can obtain the resources needed for the collection and maintenance of the dataset.

5.8 Appointment as a custodian (delivery)

Custodianship (delivery) is generally assigned on:

- a fixed term basis for non-transactional datasets, or
- an open-ended basis for transactional datasets.

Any organisation in New Zealand can be assigned custodianship (delivery).

Where a private company does not own copyright, it is likely they would deliver a dataset under a contractual agreement with the custodian (leadership). However, the private company must also be assigned custodianship using this framework.

5.8.1 Attributes of a custodian (delivery)

Potential custodians (delivery) will be assessed against the following attributes:

Understanding

Proposed custodians should be able to demonstrate their understanding of:

- the custodianship (delivery) responsibilities,
- the policies and procedures that are in place to support the New Zealand SDI,
- operating in an open and transparent manner, and
- the need to collaborate with the steward, custodian (leadership), other custodians, NZGO, users, and others as required.

Capacity

Proposed custodians (delivery) should be able to demonstrate that they:

- have experience in maintaining geospatial datasets,
- are willing and able to meet the custodianship (delivery) responsibilities,
- have the economic and technical ability to capture and / or maintain the dataset,
- can abide by quality standards set for the dataset, and
- are able to deliver on discoverability, accessibility, and interoperability.

5.9 Ratification of custodianship (leadership and delivery)

The steward identifies, and negotiates with, appropriate custodians for datasets within their theme. Throughout the process the steward consults with NZGO to ensure coordination of custodian commitments across all themes.

To formalise the commitment to custodianship, a potential custodian should submit a written proposal to the steward. The proposal should describe the organisation's intended approach to the role and its match with the attributes in 5.7.1 and/or 5.8.1, as appropriate.

The steward informs NZGO that an organisation has agreed to commit to custodianship (either leadership or delivery or both) of a dataset. They review the proposal and provide a brief written assessment to NZGO along with the proposal.

NZGO will review a proposal on its merits and will accept it if, in the opinion of NZGO, it presents a strong case and a good fit with the required attributes. NZGO will recommend to the Chief Executive Officer (CE) of LINZ that they assign custodianship to that organisation.

NZGO reserves the right not to recommend an appointment be made.

If the CE of LINZ approves the recommendation, NZGO notifies the steward of the acceptance of the commitment to custodianship. The steward then informs the successful organisation.

5.9.1 Point of contact and Open Data Champion

The custodianship organisation selects a staff member to be the custodianship point of contact, and notifies NZGO.

If the custodian has an Open Data Champion, the steward point of contact should inform the Open Data Champion of the commitment to custodianship.

5.10 Removal of custodianship

NZGO and the steward will work collaboratively with the custodian so as to ensure the success of the custodianship.

However, NZGO reserves the right to recommend to the CE of LINZ the removal of custodian responsibilities from an organisation. Once approved by the CE of LINZ, the NZGO will notify the CE of the custodian organisation, and the steward, of the removal of custodianship.

6 Joint Responsibilities

6.1 Communications and media

Each party is responsible for their own communications and media.

However, it is expected that all parties (NZGO, stewards, and custodians) will jointly agree on any publicity for the theme or dataset, prior to any media statements or material being released.

6.2 Negotiations

Each party is responsible for negotiating agreements that benefit the user community as a whole.

Negotiations regarding a dataset are not to be undertaken with any party on an exclusive basis, or in a manner that results in exclusive use of a dataset.

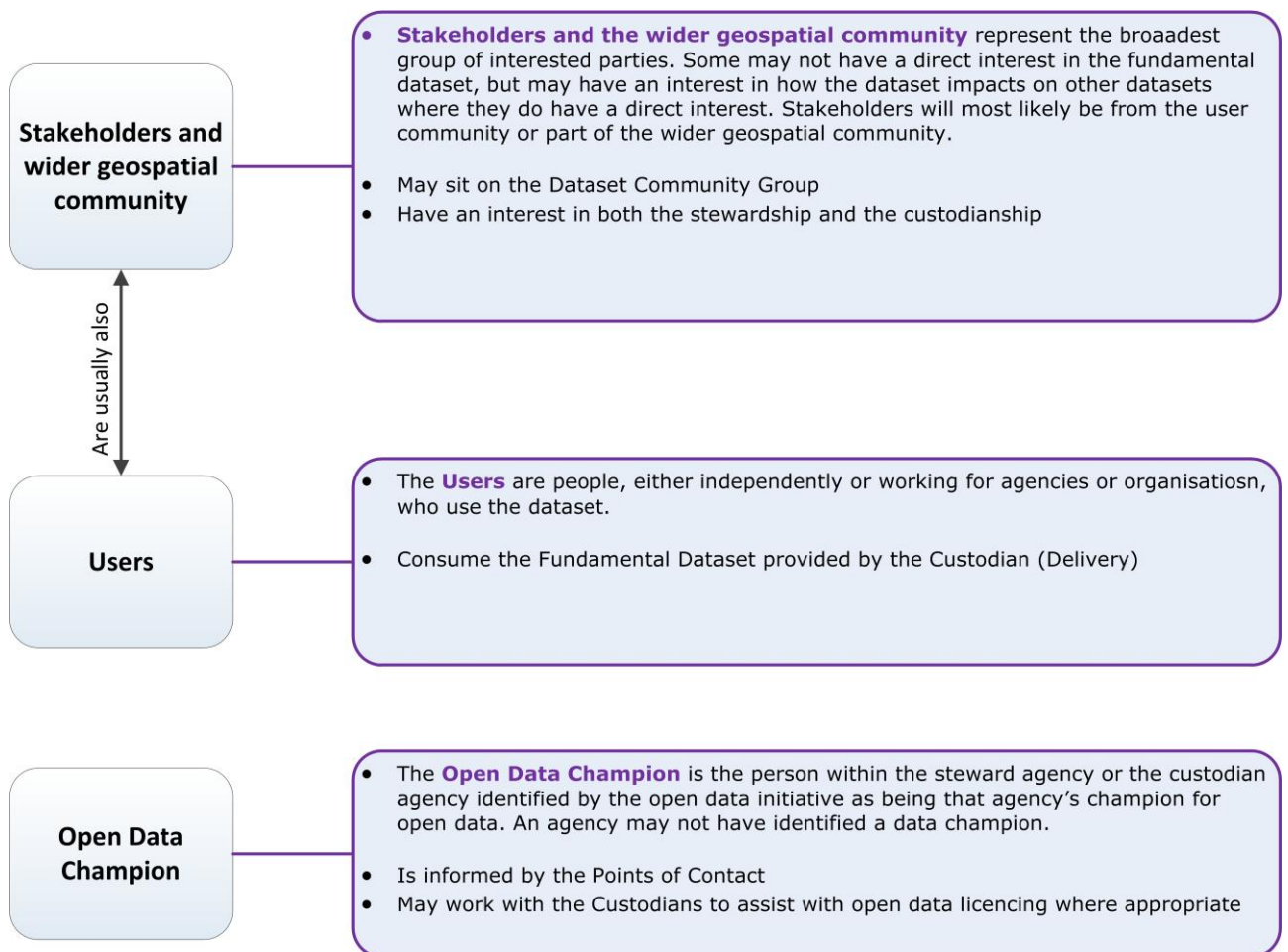
6.3 Disputes

Disputes may occur between the NZGO, Stewards, and Custodians, from time to time.

In the first instance, a dispute should be resolved between the Chief Steward National SDI (NZGO) and the Steward point of contact, or between the Steward point of contact and the Custodian point of contact, as appropriate.

Escalation will be to senior management, and then to Chief Executive, as appropriate.

7 Other Roles



Appendix 1: Copyright, licensing, procurement, funding and pricing

The information provided in Appendix 1 is for reference only. The sources listed in the footnotes should be consulted for authoritative information.

Copyright

Ownership of copyright

Copyright owners can license their copyright works to permit further use. The Copyright Act 1994's definition of a literary work includes "a table or compilation". While there is no copyright in individual facts or components in a dataset or database, copyright exists in the compilation as a whole¹³.

Licensing copyright works

The licensing for re-use of copyright works produced by State Services agencies¹⁴ must be in accordance with the NZ Government Open Access and Licensing (NZGOAL) framework¹⁵. Depending on the agency, the copyright works may enjoy copyright or Crown Copyright¹⁶.

Sub-licensing

All copyright owners can sub-license others to allow re-use of a dataset.

For example, sub-licensing has been common in Aerial Imagery procurement as a way of sharing costs between the purchaser and the provider.

When negotiating a sub-licence, stewards should negotiate the most open licence possible, and preferably a licence under the NZGOAL framework, due to the benefits that accrue from open access and open licensing of data.

Privately-owned copyright

The copyright of some datasets that meet the criteria for a fundamental dataset may be owned by the private sector.

Steward agencies may choose to procure those datasets as the most effective way of meeting their stewardship and custodianship responsibilities.

Steward agencies will need to carefully consider the most appropriate method of funding, procuring, and licensing the dataset.

¹³ See discussion in NZGOAL, paragraphs 178-181.

¹⁴ All public service departments, other departments that are not public service departments, all Crown entities, (except tertiary institutions), organisations listed in the Fourth Schedule to the Public Finance Act 1989, the Reserve Bank of New Zealand.

¹⁵ <http://ict.govt.nz/guidance-and-resources/information-and-data/nzgoal>

¹⁶ See the definition of Crown copyright in section 2 of the Copyright Act 1994. It does not include Crown entities and State owned enterprises. They enjoy copyright in their original works, not Crown copyright.

NZGOAL and Creative Commons

NZGOAL is an open access and open licensing framework that promotes the release for re-use of non-personal copyright works and non-copyright material held by State Services agencies. It was approved by Cabinet in August 2010.

It advocates using the Creative Commons suite of licences for licensing copyright works being made available for re-use. These are freely available licences that enable the sharing of copyright works for re-use in a standardised way and in forms that are human, machine and lawyer- readable. It also advocates using clear “no-known rights” statements for non-copyright material released for re-use.

It is widely recognised that legal re-use of government materials by both individuals and organisations may have significant creative and economic benefit for New Zealand.

Refer to the Government ICT website¹⁷ for more information on NZGOAL and Creative Commons.

CC BY

The licence under NZGOAL that is most consistent with a spatial data infrastructure, and most widely used for openly available geospatial data, is the Creative Commons Attribution 3.0 New Zealand licence (CC BY). Users must credit the owner. To view a copy of this licence, visit the Creative Commons website.¹⁸

Funding

How to fund a dataset will depend on the nature of the dataset. For example, whether there are statutory responsibilities with existing Crown funding, third party funding issues, and who owns the copyright.

Steward Points of Contact should discuss funding and pricing issues with their internal Finance team and their Treasury vote analyst. Treasury will assist agencies to consider the range of options for their particular circumstances.

Some prompts as ideas for ways to fund datasets are outlined in Appendix 1. All options should be considered in consultation with Treasury and agency finance teams.

It should be noted that under International Financial Reporting standards (IAS 38)¹⁹ many datasets are now considered to be an asset and therefore will require capital, rather than operating, funding.

It is the responsibility of the steward to assess and consult on the appropriate options, and, if necessary, prepare a business case to obtain appropriate funding.

¹⁷ <http://ict.govt.nz/guidance-and-resources/information-and-data/nzgoal>

¹⁸ <http://creativecommons.org/licenses/by/3.0/nz/>

¹⁹ <http://www.ifrs.org/IFRSs/Documents/English%20IAS%20and%20IFRS%20PDFs%202012/IAS%2038.pdf>

Better Business Case

Expectations for the management of investments and both physical and intangible assets by departments and some Crown entities are set out in Cabinet Minute CO (15) 5²⁰. The circular requires the use of The Treasury business case guidance for all significant investment proposals from relevant state sector agencies

The Treasury advocates the Better Business Case (BBC) framework for all types of business cases, regardless of who has the decision rights. Information and guidance on Better Business Cases, and when to use them, can be found on The Treasury website's Investment Management pages²¹.

It is recommended that stewards or custodians planning investments in geospatial data get in touch with their finance or support unit, and/or The Treasury's Infrastructure Unit, for advice on writing Better Business Cases.

Pricing

The over-arching principle, outlined in the Data and Information Management Principles²² is that government held data and information should be free, unless there is a very good reason for it not to be. If it cannot be free, then any charge should be only for access to the data. There should be no charge for re use.

If fees are to be charged, then there is a range of guidance on how these should be determined. Fees should be discussed with the agency Treasury vote analyst. Stewards and custodians should refer to the following guidance to consider what is most relevant in their circumstances:

- Data and Information Management Principles²²
- Treasury Guidelines on Setting Charges in the Public Sector²³
- Auditor General Good Practice Guide on Charging Fees for Public Sector Goods and Services²⁴
- The Ministry of Justice guidelines for Official Information requests, consistent with the guidance provided in the above²⁵.

²⁰ <http://www.dPMC.govt.nz/cabinet/circulars/co15/5>

²¹ <http://www.treasury.govt.nz/statesector/investmentmanagement/plan/bbc>

²² (<https://www.ict.govt.nz/guidance-and-resources/open-government/new-zealand-data-and-information-management-principles/>)

²³ <http://www.treasury.govt.nz/publications/guidance/planning/charges>

²⁴ <http://www.oag.govt.nz/2008/charging-fees/docs/charging-fees.pdf>

²⁵ <http://www.justice.govt.nz/publications/global-publications/m/ministry-of-justice-charging-guidelines-for-official-information-act-1982-requests-18-march-2002>

Procurement

Advice on Government procurement policy and requirements can be found at the Ministry of Business, Innovation and Employment website on Government procurement²⁶. In particular, there is a page specifically for geospatial data procurement²⁷.

Options for procurement include:

- all-of-Government contracts:

All-of-Government contracts establish a single supply agreement between the Crown and approved suppliers for the supply of selected common goods and services purchased across government²⁸.

- syndicated procurement:

Syndicated procurement typically involves a 'cluster' of agencies aggregating their respective requirements (needs) and collectively going to market for common services and pricing.

It may also involve an agency or agencies anticipating collaboration and including a Common Use Provision (CUP) clause within the resulting contract, to allow other agencies to join the contract later²⁹.

A 'cluster' of agencies could use their purchasing power to negotiate a discount or rebate from a third party provider. Syndicated procurement, in combination with the funding ideas outlined in Appendix 1, might help to cover the cost of establishing and managing new datasets.

This method of funding would be simple to administer, while ensuring stable costs to the recipient of the data services. However, syndicated procurement is not a preferred option, as it may limit the re-use of the dataset, and result in the government purchasing the same data multiple times. The steward agency should assess procurement options in consultation with the user community, the custodian, and the owner of the copyright.

The steward agency should consider copyright ownership and licensing options when procuring, and negotiate the most open licence possible.

²⁶ <http://www.business.govt.nz/procurement>

²⁷ <http://www.business.govt.nz/procurement/for-agencies/key-guidance-for-agencies/geospatial-procurement>

²⁸ <http://www.business.govt.nz/procurement/all-of-government-contracts>

²⁹ <http://www.business.govt.nz/procurement/all-of-government-contracts/syndicated-contracts>

Appendix 2: Funding ideas

As a prompt for steward and custodian consideration with their Finance team and Treasury vote analyst, some funding ideas are outlined in the table below, including pros and cons of each. These ideas are not mutually exclusive and stewards could consider combining various options.

Table 1: Funding options for fundamental datasets

Funding option	Outline	Pros	Cons	Best used when...
Funding within baselines				
Baseline reduction	The full costs are funded by the reduction of one or more baselines and redistributed to the steward / custodian.	<ul style="list-style-type: none"> • simple once decision has been made • certainty of funding • low cost of administering the funding mechanism • clear signal of all costs involved in provision 	<ul style="list-style-type: none"> • highly contentious to agree • not necessarily connected to recipients consumption • can provide only broad connection to levels of provision • separates cost signals between administration and cost of providing the data 	<ul style="list-style-type: none"> • it is easy to agree • there is a clear trusted leader in the field who can meet the needs of other parties.
Cooperative funding (club funding)	Agencies agree on shared arrangements, including sharing the administration and maintenance costs, and pool the required funding.	<ul style="list-style-type: none"> • agreement upfront • reasonably simple to administer dependent on the number of agencies • reasonably low cost of administering the funding mechanism • clear signal of all costs involved in provision 	<ul style="list-style-type: none"> • increasingly complex the larger the group • can be difficult to agree terms of cooperative funding • heavily based on goodwill • risk of collapse if agencies withdraw 	<ul style="list-style-type: none"> • there are a small number of highly committed agencies

Funding option	Outline	Pros	Cons	Best used when...
Direct charging (proven to be effective)	The provider charges users full costs for access to the product or service (rather than ownership of the data).	<ul style="list-style-type: none"> clear signal of all costs involved in provision can be low cost to administer if highly automated 	<ul style="list-style-type: none"> can be high cost and complex to administer unless highly automated may be over or under funded when based on estimated costs and forecast usage 	<ul style="list-style-type: none"> the lead agency can be sure that there is an ongoing demand for the dataset
Transactional charging (proven to be effective)	A fee is collected (possibly on top of the direct charge for products or service) at the time of the transaction.	<ul style="list-style-type: none"> fairly simple to administer total cost model covering all costs of data 	<ul style="list-style-type: none"> may over or under fund costs when based on estimated costs and forecast usage 	<ul style="list-style-type: none"> the dataset is updated frequently or transacted upon often
Front loading of spending	<p>Agencies draw forward future spending, offset by reduction in forward costs.</p> <p>This occurs within the budget cycle.</p>	<ul style="list-style-type: none"> agency determines its own spending priorities. 	<ul style="list-style-type: none"> must have bankable future savings. Effectiveness gains are often not bankable. [Mitigation: find ways to bank savings] steward bears the full cost. if savings don't materialise, other budgets must be cut. requires a high level of certainty about future savings. not a sustainable method of funding ongoing costs. 	<ul style="list-style-type: none"> one agency benefits substantially through bankable future savings over a short period of time
Front loading of spending repayable over a longer period	<p>Same as above but the money is repaid over a longer period.</p> <p>This occurs within the budget cycle.</p>	<ul style="list-style-type: none"> as above 	<ul style="list-style-type: none"> as above 	<ul style="list-style-type: none"> one agency benefits substantially through bankable savings over a longer period of time

Funding option	Outline	Pros	Cons	Best used when...
Capital operating swap (Can be agreed by joint Ministers)	Funding is moved from capital expenditure to operating expenditure. [For example, IT as a service.]	<ul style="list-style-type: none"> greater flexibility on how to spend baseline funding. savings from the cost of capital funding and depreciation 	<ul style="list-style-type: none"> unlikely there will be sufficient capital available to arrange a swap of this nature. there may be higher priorities for capital expenditure. 	<ul style="list-style-type: none"> where capital spending can be converted into ongoing operational spending
Additional funding				
Direct funding from government. Subset of this is when government provides upfront investment, and recoups its investment from savings produced.	<p>Funding to cover full costs is provided by the government.</p> <p>A Business Case needs to be developed.</p> <p>Depending on the size of the project, it could proceed through the Cross Agency Initiatives Process (CAIP) that provides incentives to engage in joint projects that will yield savings.</p>	<ul style="list-style-type: none"> simple certainty of funding low cost of administering funding mechanism 	<ul style="list-style-type: none"> at risk of change through budget cycle no signal to recipients for the costs of provision may over or under fund based on estimated costs rather than actual cost limits the government's flexibility to fund other priorities difficult to obtain in current fiscal environment 	<ul style="list-style-type: none"> substantial, quantifiable and guaranteed benefits are widely dispersed beyond government new idea or function for government public good benefits
Funding that could be either within baselines or additional				
Public-private partnerships (requires Cabinet approval)	Agencies partner with a private company or companies who provide part or all of the required funding. The potential for this option would be established as part of the detailed business case process.	<ul style="list-style-type: none"> taps additional pool of resources. lead to outcomes that meet public and private needs. 	<ul style="list-style-type: none"> difficult to agree terms. can lead to over or under funding from each side if estimates are not accurate only large projects will warrant involving the private sector as a partner. Private sector would need sufficient incentives. 	<ul style="list-style-type: none"> where substantial benefits accrue to the private sector

Funding option	Outline	Pros	Cons	Best used when...
Use of crowd sourcing or voluntary participation	Volunteered Geographic Information (VGI) can be provided by others outside government	<ul style="list-style-type: none"> Engaged resource that is largely free. Wider coverage possible than government funded. Advances made where interest lies. 	<ul style="list-style-type: none"> May raise concerns over quality, coverage, reliability. Additional costs of verification may be needed. May not lead to full coverage, requiring gap filling. 	<ul style="list-style-type: none"> Where public demand is great from a committed audience Agencies can either put out data and ask the crowd to correct it, provide a structure or system for the crowd to populate it (such as OpenStreetMap), or pose a question for the crowd to validate (such as Terralink's address validator).
Crowd funding	Ask for contribution from others to fund work that would then be prioritised by government.	<ul style="list-style-type: none"> Community demand driving government priorities. More work done than baselines allow. 	<ul style="list-style-type: none"> Agenda driven by private interest rather than public good. 	<ul style="list-style-type: none"> Strong community or private sector interest but lower public sector interest.
Competitions	Government offers prize for others to solve issue or problem. For example, Mix N Mash competition.	<ul style="list-style-type: none"> Use of a wide pool of talent. Innovative solutions not thought of previously. Set amount paid, which can be substantially lower than a tendered process. Not paid if doesn't meet need. 	<ul style="list-style-type: none"> Unsure of participation and final result. 	<ul style="list-style-type: none"> Where innovative approaches are required and costs need to be fixed

Appendix 3: Agencies and roles

The roles of steward and custodian are assigned to agencies (or organisations). The agency then appoints a person from within the agency to the role of point of contact.

It is highly likely that for some datasets, agencies will commit to more than one role. For example, an agency may choose to take on the role of steward for a theme that contains datasets for which they are the custodian.

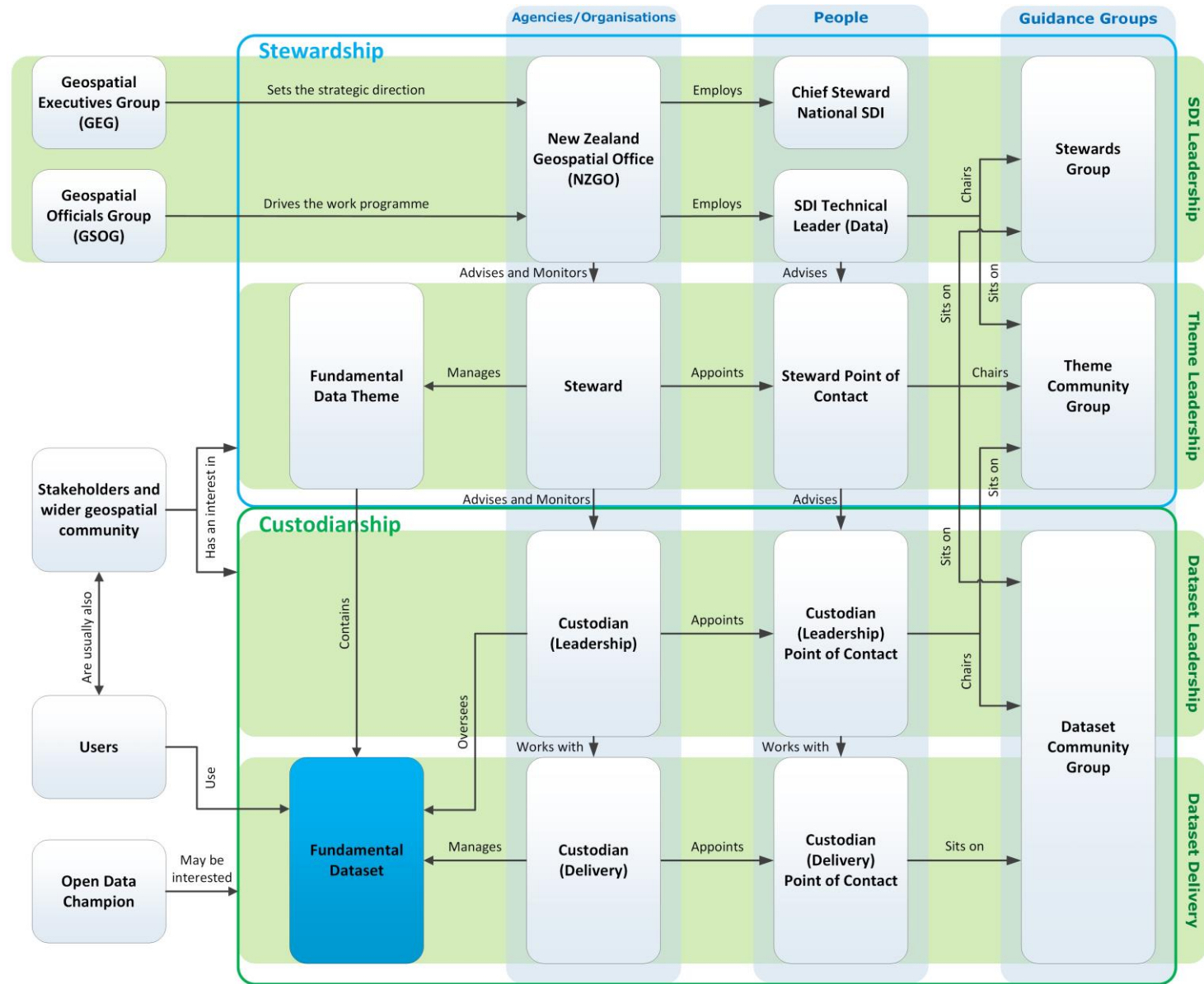
The following four diagrams illustrate the most likely combinations of stewardship and custodianship that an agency is likely to consider. Other arrangements are possible.

Historic. Not in use.

Separate steward and separate custodians

In this scenario, all three roles of steward, custodian (leadership) and custodian (delivery) are assigned to separate agencies.

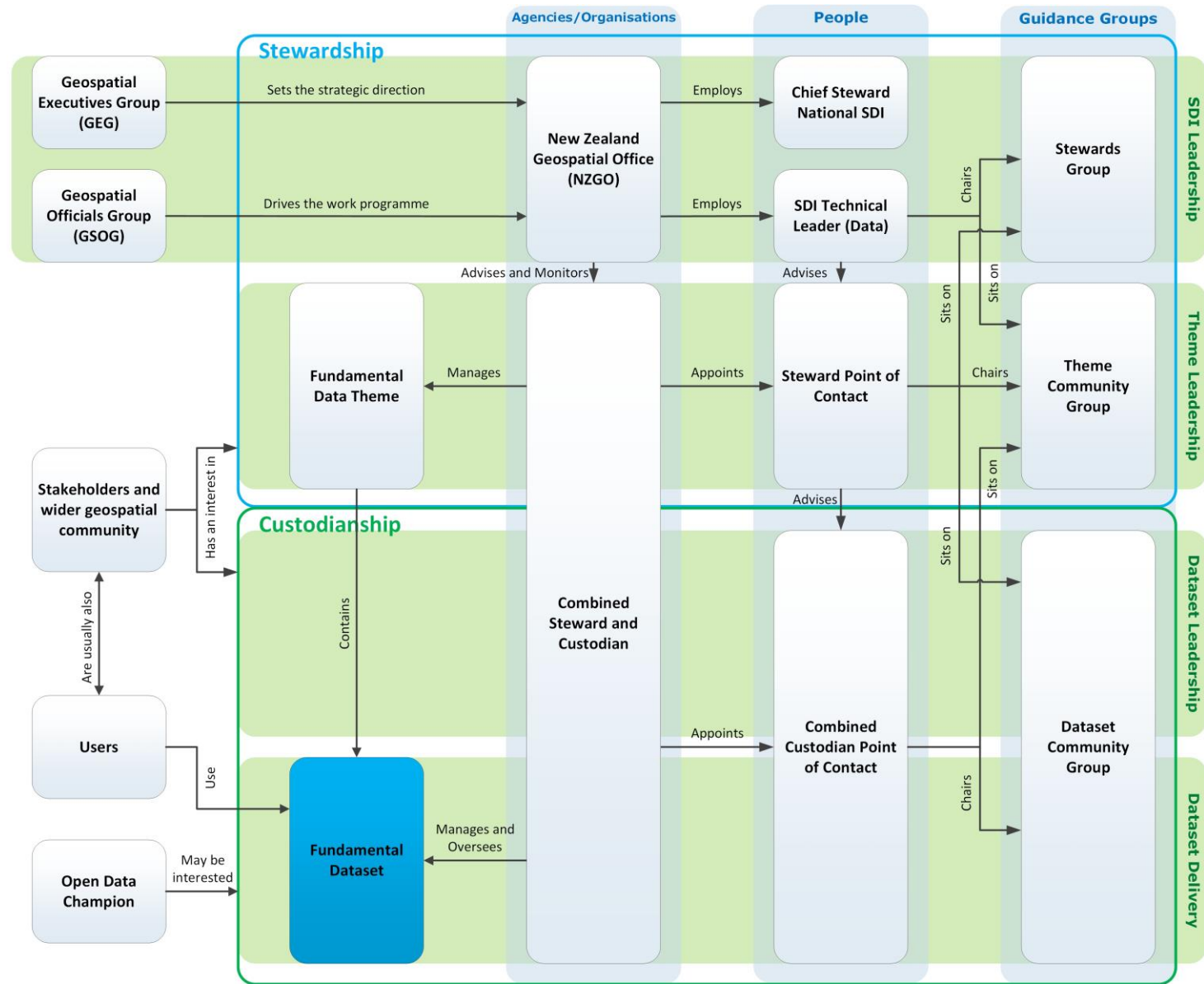
Each agency appoints their own point of contact.



Combined steward and custodians

In this scenario, all three roles of steward and custodian (both leadership and delivery) are assigned to a single agency.

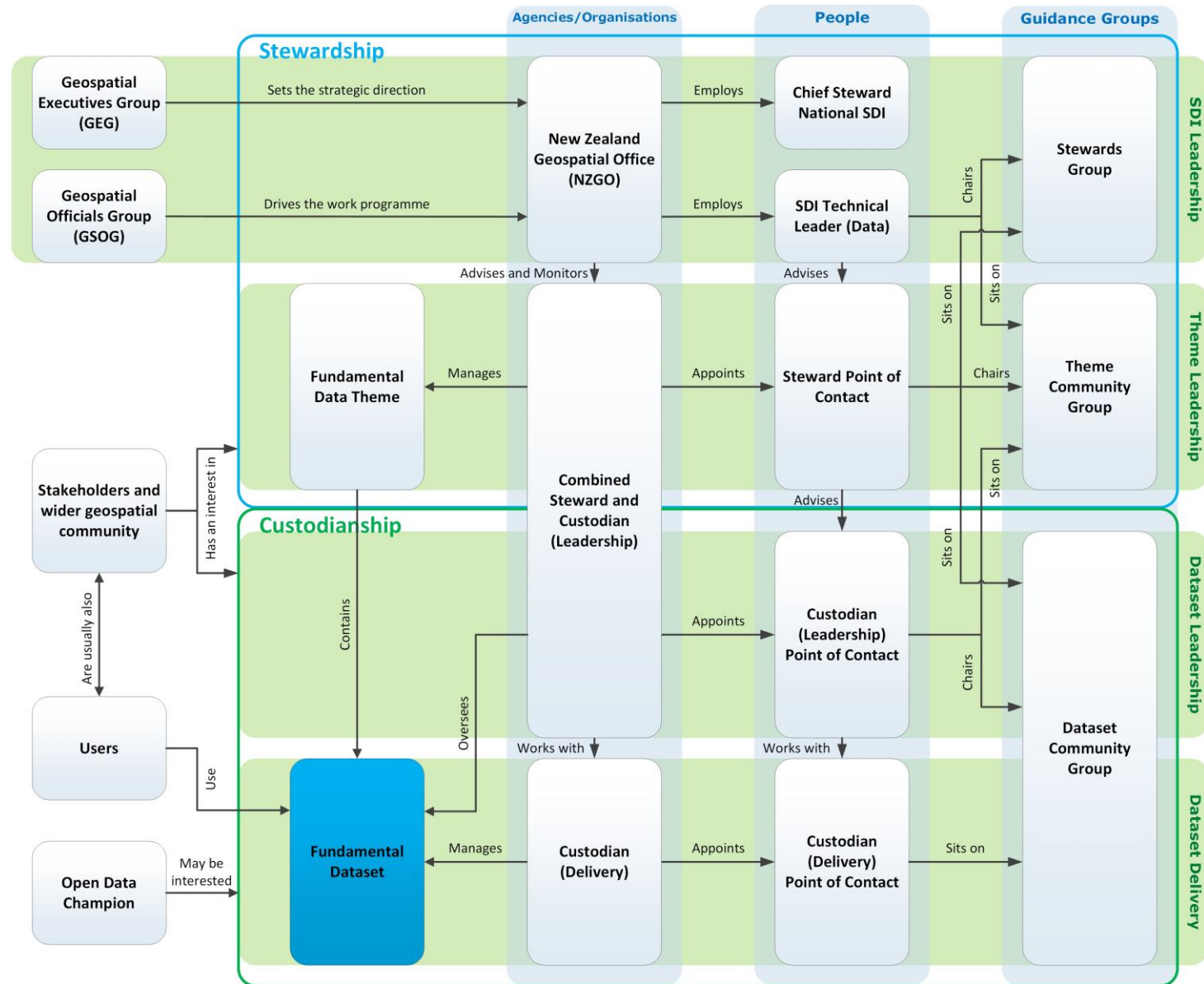
It is expected that there will be a point of contact appointed for the stewardship role, and a point of contact appointed for the custodianship role.



Combined steward and leadership custodian

In this scenario, the theme and dataset leadership roles (steward and custodian leadership) are held by the same agency. The delivery role (custodian delivery) is performed separately (may be either the public or private sector).

Only one point of contact needs to be appointed for the steward and custodian leadership, however a separate point of contact is required for the custodian delivery.



Separate steward and combined custodian

In this scenario, the leadership roles of steward and custodian (leadership) are assigned to a single agency, while the custodian (delivery) role is assigned to a separate agency or organisation.

Each role will require a separate point of contact to be appointed.

