Data and Information Governance

Methodology for Data and Information Governance

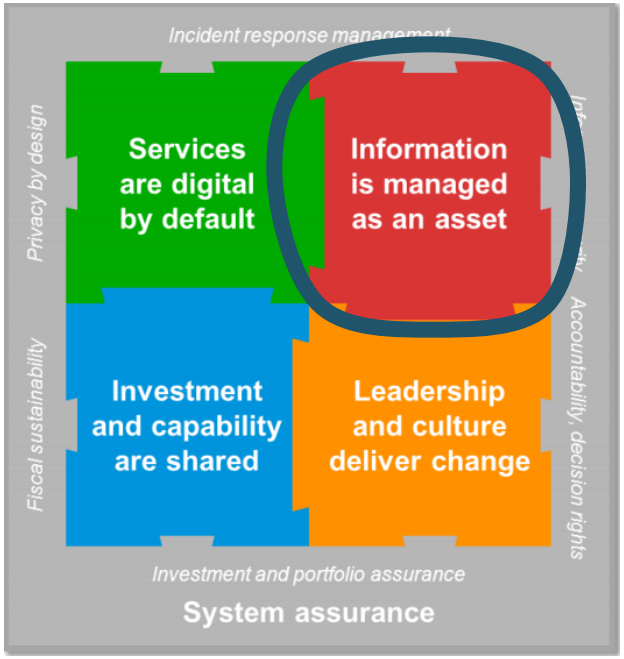
"Information is Managed as an Asset"
- ICT Strategy and Action Plan 2017

New Zealand Government

Executive Summary

New Zealand ICT Strategy and Action Plan to 2017

- One of the core elements in the plan requires that **Information is managed as an Asset**
- The plan requires agencies to make progress in Data and Information Governance
- Current Data and Information Management challenges include the following:
  - Responsibilities and accountabilities are fragmented
  - Data and Information Management is too dependent upon ICT
  - It is not well integrated with risk and assurance
  - It is siloed within agencies & business units

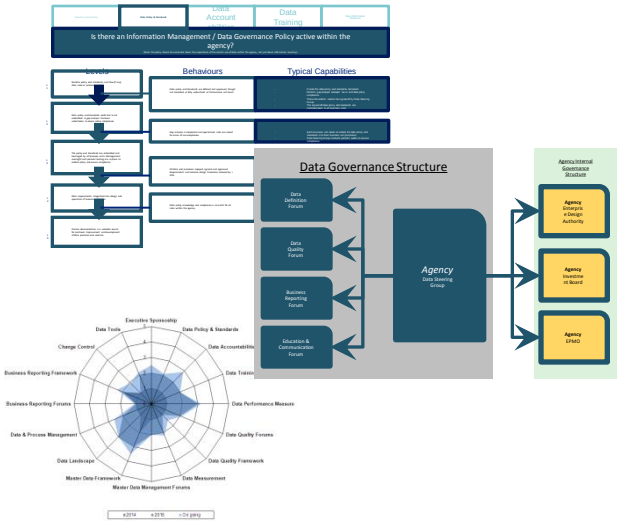


- DIA tasked with raising the maturity level of Data and Information Governance across Government
  - Data and Information Governance maturity framework
  - Data and Information Governance assessment tool
- Data and Information Governance are priorities that require executive attention

Executive Summary – The Purpose

The purpose of the Data and Information Governance framework and maturity assessment questionnaire

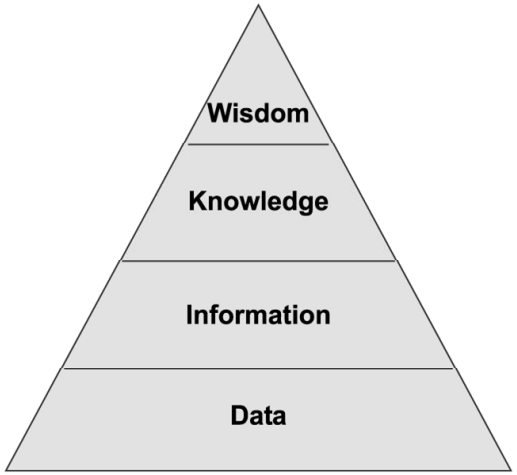
- Low-cost tool to help agencies assess current level of maturity
- To develop appropriate structures and processes towards next level
- Avoid wasted expenditure on tools and processes
- Designed for use and benefit of agencies and sectors
    - **Not** a central **scoring** exercise
- Results remain within the agency
    - The agency choice to share results



Data versus Information

Are we focusing on Data or Information?

- **Data** are basically just facts. These facts have not been processed or dealt with and are in their rawest form.
- **Information** is used and processed data in a consumable way.
- Information is processed as **knowledge** for decisions and actions.
- Data and Information Governance covers both data and information because information can be seen as data for one purpose but also as information for another purpose, therefore the distinction is not relevant in this context.
- Suggested stakeholders allocation and responsibility for this framework



Stakeholders	We document and control our data and information processes	We embed our data and information responsibilities	We share a data and information language	We assure our data and information quality	We use our data and information wisely
Executives		√			√
Business Managers with Data and Information Responsibilities		√	√	√	√
Data and Information Specialists	√	√	√	√	
Technology Specialists	√			√	

"Why do we need Data and Information Governance?"

First we need to **understand** our data and information processes to successfully manage them.

Once we understand our data and information we know who can **manage** and **control** it.

If data and information is managed we can develop a **common understanding** to simplify and share data and information.

To have **high quality** data and information we need to keep data and information complete, accurate and current.

High quality data and information gives us **confidence** that information is fit for purpose for **important decision making**.

The Five Core Focus Areas

We Document and Control our Data and Information Processes

- Business processes are complex, poorly understood and fragmented -> multiple versions of the truth:
  - Simplify business processes will simplify data and information processes
  - This will gives us a clear view on our data and information flows -> higher quality and higher confidence

We Embed Our Data and Information Responsibilities

- Data and information needs to be viewed as a critical business asset – not just an ICT concern:
  - Clarity on rights and accountabilities
  - Clarity on custodianship
  - Training will ensure that data governance is used throughout the agency

We Share a Data and Information Language

- Terms have different meanings within and across agencies:
  - Shared understanding with a common data and information language
  - Common data and information definition terminology gives a higher confidence in our data and information

We Assure Our Data and Information Quality

- Quality is difficult to measure:
  - Standard rules are needed to assess data and information completeness, accuracy and currency.
  - Make key decisions with high quality data and information

We Use Our Data and Information Wisely

- Business decisions and reporting are at risk from unreliable data and information:
  - Confidence in data and information used to make important decisions
  - The right reports to the right people -> consistent and trusted reporting
  - Data and information management practice reduce risk of inappropriate disclosure
  - Exploit the value of data and information to improve services effectiveness

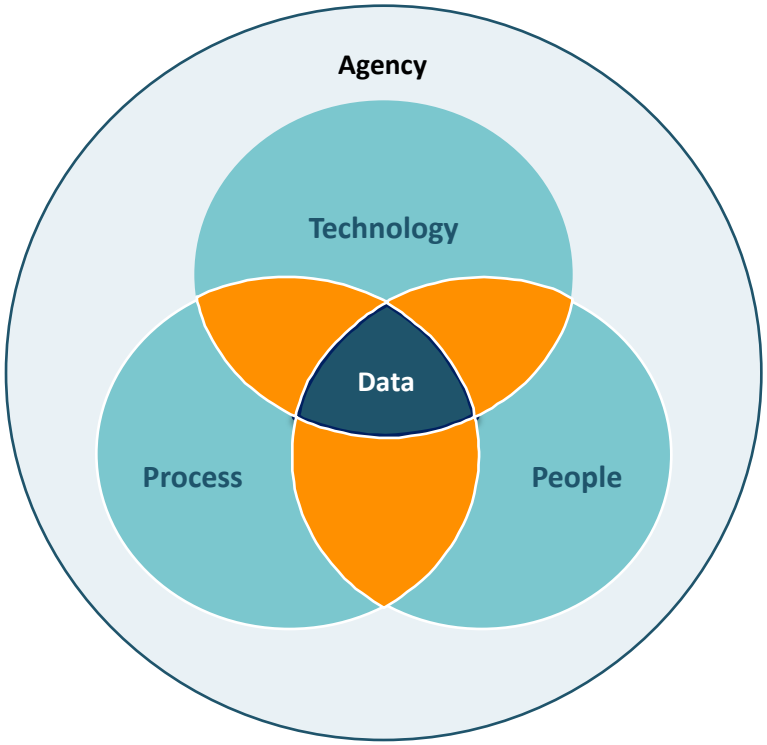
Linking Data to Business Outcomes

Having access to reliable high quality data and information is a pre-requisite to delivering meaningful information for agencies. However information alone does not translate into immediate benefits or efficiency gains and should be considered in the context of people, process and technology. To obtain these benefits a strong collaboration between ICT and the business is required – i.e. poor data and information quality is **NOT** just an ICT problem. It requires a joint effort between ICT and the business.

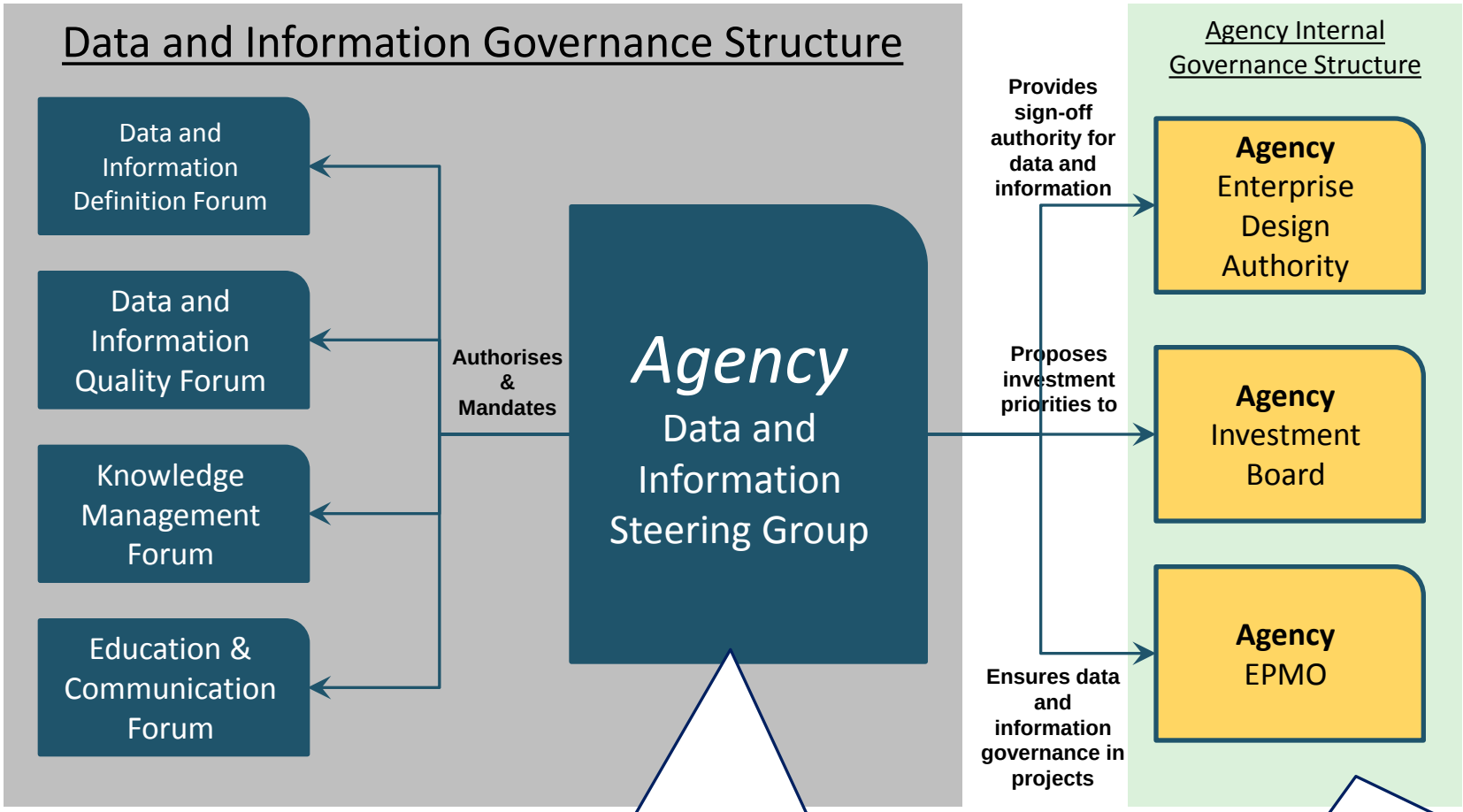
High performing organisations align their technology, people and processes around shared information assets:

Data and information lies at the heart of tying people, process and technology together:

- Without common data and information, disparate processes cannot seamlessly communicate and interact with each other.
- Without common data and information, systems cannot be integrated and communicate effectively.
- Without a common data and information language, people cannot communicate information and collaborate effectively across agencies or sectors.



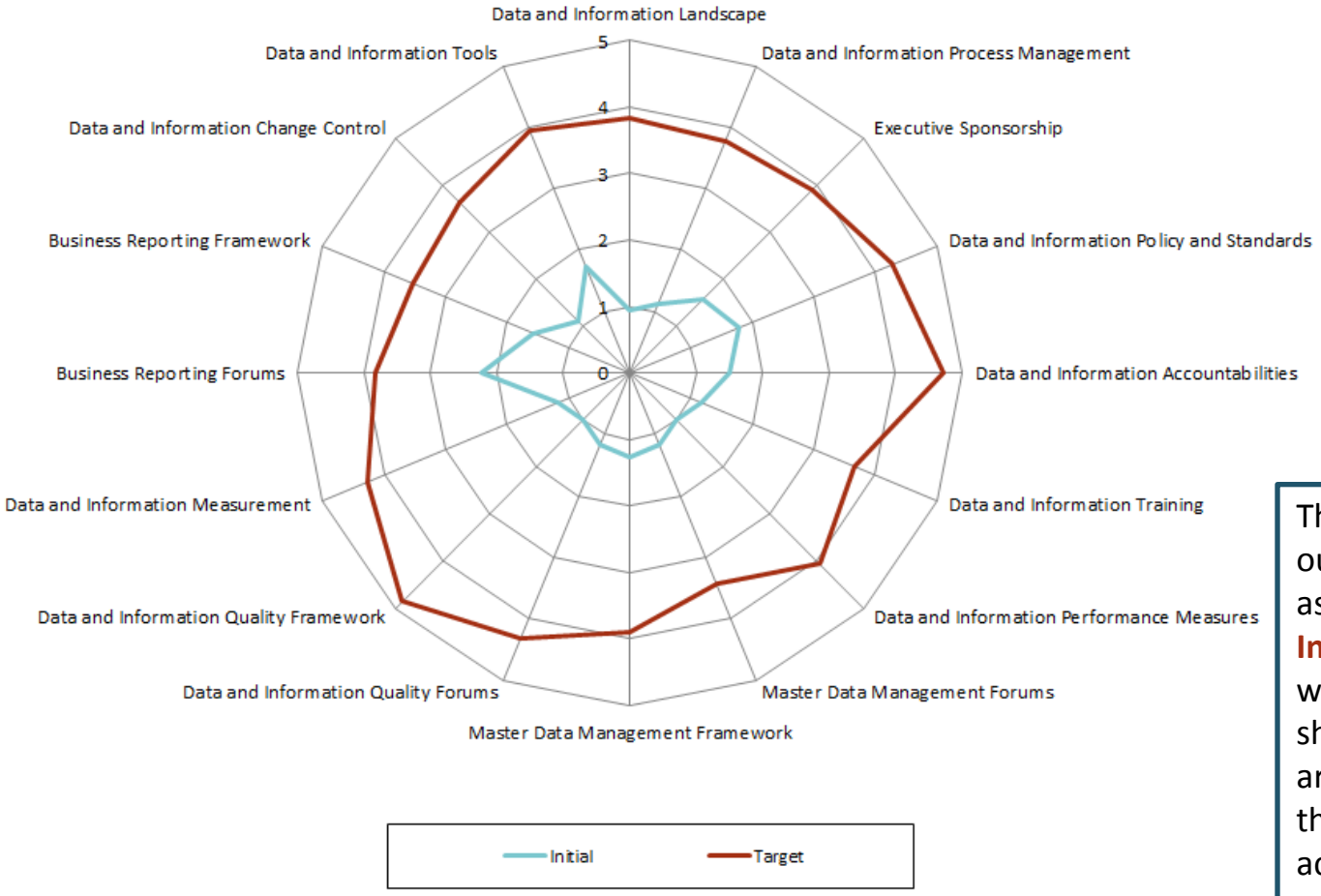
Data and Information Governance Structure



The **Agency Data and Information Steering Group** can be a current ELT Forum with 'Data and Information' added as an agenda item, or a separate forum in it's own right. Its purpose is to provide **mandate** and **sign-off** for Information and Data and Information Governance.

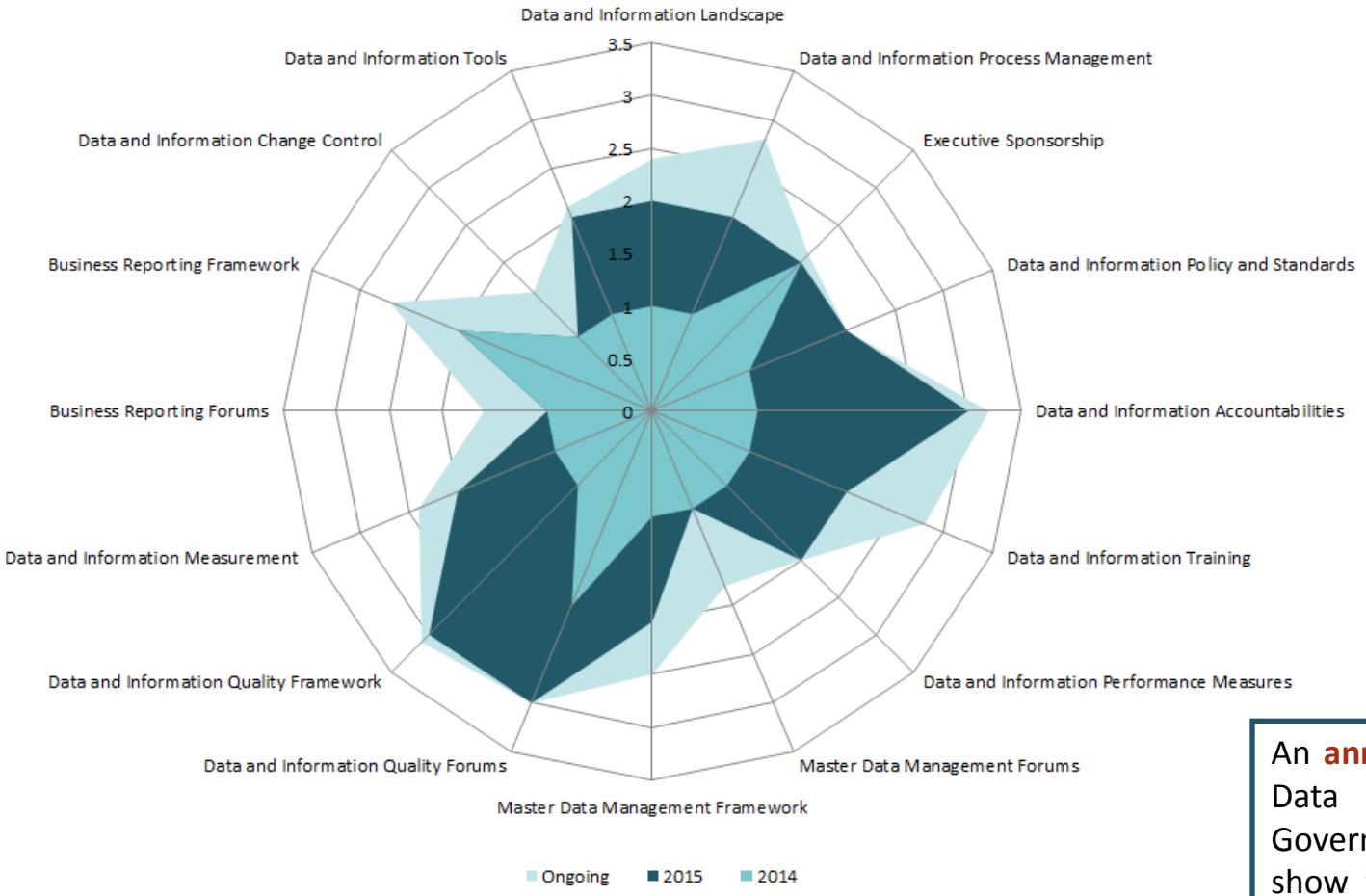
This structure is what is typically be expected in an agency with a mature **Enterprise Architecture Capability**.

Maturity Assessment Evaluation - Example



This is an example of the output from a maturity assessment. Looking at the **Initial marks** and combining it with the **typical behaviours** it shows progress across each area. With the **typical steps** the agency can build a plan of action for the short and mid-term future.

Annual Maturity Assessment Evaluation – Example



An **annual evaluation** of the Data and Information Governance maturity will show the progress that has been made and the focus points for the coming year.

Maturity Assessment Questionnaire

We Document and Control our Data and Information Processes

Data and Information Landscape | Data and Information Process Management

Does the agency has a centralised approach for describing there data and information which are stored in core record systems and in excel sheets, documents, statistics…?

Levels	Typical Behaviours	Typical Steps
L1 There are incomplete or inconsistent data and information dictionaries and there is data and information redundancy across systems. There is no process in place to ensure that data models are designed and developed in a consistent way.	IT Systems landscape documented but the end user tools which handle data and information are not documented or understood.	• Agree and document approach for an initial stock take. • Create a central repository for the validated data and information definitions, create an inventory of data sand information assets and repositories and data models. • Map flows between repositories and sources .
L2 Data architecture models, data and information dictionaries and data and information structures are documented, base lined and subject to change control.	IT Systems and critical end user tools are understood and documented into an data and information landscape. Data and information flows across the landscape is understood.	• Undertake gap analysis between the validated data and information definitions, data and information structure and meta data and the data architecture. • Identify processes and implement a method for changes to the data and information landscape using the data architecture.
L3 A comprehensive agency data architecture has been approved and processes are embedded to reconcile the data architecture with changes to the data and information landscape.	There is a single metadata repository implemented and core to all business unit data and information definition and design processes. The repository is exposed agency-wide to all stakeholders via wiki interface.	• Extend the stock take to complete the data and information landscape including the landscape of the end user tools. • Extend repository to incorporate all data and information assets meta data. • Implement governance over the central repository for change control.
L4 The agency has documentation of the complete data and information landscape which is under change control.	Full end-to-end lifecycle for data and information known and documented - this covers all IT systems and major end user tools. The end user tools are markedly smaller than was originally and is critically appraised for whether they should still be in use.	• Implement a method to continually modify, refine and simplify the data and information landscape. • Reduce the net number of data and information movements and rationalize duplicate repositories.
L5 The agency continually monitors, refines and simplifies their high level data and information landscape.		

We Document and Control our Data, Information and Processes

Data and Information Landscape	Data and Information Process Management

Is there a shared understanding across the agency that data and information processes are tightly coupled?

Note: One cannot happen without the other.

Levels	Typical Behaviours	Typical Steps
L1 There are only a few key data and information assets and processes defined, and no agency rules exist regarding data and information process management.	There is recognition that data and information processes are intrinsically entwined, but only major business processes are documented end-to-end. The End User Computing landscape is covered in hap-hazard fashion.	• Using the data and information landscape document, at least at maturity level 2, together with the agency business process landscape, the Data and Information Steering group defines an approach for data and information process management • Data and Information Steering Group identifies which processes and data and information assets are key to the agency and sets priorities based on the relative value.
L2 An agency approach has been defined and developed to map key data and information flows end to end for key business processes.	Functional process and data and information flows are modelled, understood and under change control. Solution architecture starts to re-use common flows.	• Data and Information Steering Group maps the key data and information assets with the key business processes to document key data and information flows. • Key data and information flows documentation is incorporated in to the solution architecture. • Projects are required to explicitly consider data and information flows and migration in there scope and solution architecture.
L3 The agency manages data and information processes and maps data and information flows to business process activities.	Agile and What-if scenarios are applied to potential re-development of data and information flows and processes. Efficiencies aggressively sought and satisfied. Waterfall methodology almost non-existent. Time to market for new or improved capabilities is much shorter. Release management on a weekly basis via sprint cycles.	• Key data and information flows documentation is under full change control with oversight form the Data and Information Steering Group. • Embed the key data and information flow documentation in the business process lifecycle and the PMO governance processes. • Projects have to follow agreed data and information solution patterns.
L4 Agency data and information process management practices require key data and information controls to monitor data and information flows through business processes. Data architecture informs these practices.	Full target landscape for data and information processes documented and understood. Investment is mainly in implementing Straight-Through-Processing and decommissioning legacy IT and End User Computing platforms.	• Data and Information Steering Group periodically reviews the key data and information flows implementations within the business process lifecycles to ensure data and information process change control compliance is met. • Proactively assess and improve the data and information process management practices across business units. • The annual business planning process includes
L5 The agency continually monitors, refines and simplifies their data and process management activities.		

We Embed Our Data and Information Responsibilities

Executive Sponsorship	Data and Information Policy and Standards	Data and Information Accountabilities	Data and Information Training	Data and Information Performance Measures

Is the concept of Data and Information Governance recognised by executives as a requirement for the agency? Do they understand the need for high quality data and information to be used to run and manage the agency?

Levels	Typical Behaviours	Typical Steps
L1 No executive management sponsorship.	Tier 2 level roles are formally identified as sponsors of data and information governance.	• Establish a business case for better data and information management. • Promote the need for data and information governance to tier 1 & 2 executives. • Identify and appoint tier 2 level roles as sponsors of data and information governance into a Data and Information Steering Group.
L2 The importance of data and information is recognised by executives and there is an agency Data and Information Steering Group in place at executive level. The Data and Information Steering Group oversees the data and information quality, usage and governance.	All Tier 2 level roles have shared responsibility for data and information governance.	• Identify and agree the data and information policy. • Agree with sponsors the ownership of the data and information policy. • Communicate the data and information policy to all business units.
L3 The Data and Information Steering Group owns data and information policy but the "Information is managed as an asset" maxim not fully understood.	Tier 2 level roles have responsibilities and accountabilities within role descriptions. These responsibilities trickle down to roles in each business unit.	• Identify, agree and document the responsibilities and accountabilities for data and information assets. • Embed these responsibilities and accountabilities into role descriptions in each business unit.
L4 The Data and Information Steering Group owns the data and information policy. Data and information is viewed as an asset and actively sponsored by executive management.	Agency has a Chief Data and Information Officer who has accountability for all data and information. Other tier 2 roles have responsibilities aligned to all data and information assets.	• Embed responsibilities and accountabilities for ALL data and information assets into role descriptions. • Employ a Chief Data and Information Officer who is responsible for agency-wide governance and utilisation of information as an asset, via data processing, analysis, data mining, information trading and other means.
L5 There is shared decision making and control over all data assets through the Data and Information Steering Group.		

We Embed Our Data and Information Responsibilities

Executive Sponsorship	**Data and Information Policy and Standards**	Data and Information Accountabilities	Data and Information Training	Data and Information Performance Measures

Is there an Data and Information Governance policy active within the agency?

Note: The policy should be concerned about the importance of the correct use of data within the agency, not just about Information Security.

Levels	Typical Behaviours	Typical Steps
L1 No agency wide data and information policy and standards, and few (if any) data and information rules or processes exist.	Data and information policy and standards are defined and approved, though not socialised or fully understood at the business unit level.	• Confirm the value drivers for better data and information management. • Define guiding principles for data and information management. • Create the data and information policy and standards document. • Perform gap analysis between 'as is' and data and information policy compliance. • These documents need to be signed off by Data and Information Steering Group. • The signed off data and information policy and standards are communicated to all business units.
L2 Data and information policy and standards exists but are not embedded. A gap analysis has been undertaken to assess policy compliance.	Gap analysis is completed and operational risks are raised for areas of non-compliance.	• Each business unit needs to embed the data and information policy and standards in to their business unit processes. • Data and Information Steering Group conducts periodic audits to assure compliance.
L3 The policy and standards are embedded and leveraged by all business units. Management oversight and periodic testing are in place to embed policy and assure compliance.	All data and information processes mapped, agreed and approved. Requirements and solution design timescales reduced by > 50%	• Data and information policy and standards rules need to be in place for all new designs. • New designs can only be signed off by the Data and Information Steering Group if compliance is reached with the data and information policy and standards. • Project control points including data and information readiness check lists.
L4 Data and information policy and standards are integrated into design and operation of business processes, as well as well as attended to project gates.	Data and information policy knowledge and compliance a core skill for all roles within the agency.	• Every role and process description has the data policy and standard behaviors embedded. • Date and Information Steering Group reviews the data and information policy and standards periodically to improve practices and controls for the agency.
L5 Data and information policy and standards are integrated into business processes. Data and information process documentation are a valuable source for continual improvement and development of practices and controls.		

We Embed Our Data and Information Responsibilities

Executive Sponsorship	Data and Information Policy & Standards	**Data and Information Accountabilities**	Data and Information Training	Data and Information Performance Measures

Are managers and staff aware of the accountabilities they have when gathering, processing and using data and information beyond any applicable statutory obligations?

Levels	Typical Behaviours	Typical Steps
L1 Data and information accountabilities not defined and any governance is reliant on key individuals.	Proposed data and information accountabilities understood at Data and Information Steering Group level but not socialised or understood elsewhere in agency	• The Data and Information Steering Group needs to define what the data and information accountability means for the agency, for business units and roles. • Document the data and information accountabilities for agency, for business units and roles. • Perform gap analysis between 'as-is' and data and information policy compliance. • The Data and Information Steering Group signs off the data and information accountabilities.
L2 Data and information accountabilities are defined but are not embedded in day to day practice. Analysis has been undertaken to highlight policy compliance gaps.	Concept of responsibility and accountability defined and socialised	• The data and information accountabilities are communicated to all business units. • Each business unit needs to fully integrate the signed off data and information accountabilities into their day to day practice and behaviours.
L3 Data and information accountabilities are defined and embedded in day to day practice. Compliance gaps have been resolved.	Specific responsibilities and accountabilities documented and measured from tier 2 level and dependent Subject Matter Experts in each business unit.	• The Data and Information Steering Group conducts periodic audits to assure compliance. • Data and information accountabilities need to be in place for all new data and information assets and data changes.
L4 Data and information accountabilities are defined and embedded in day to day practice. They are monitored and reviewed in line with strategic data and information requirements.	Data and information responsibilities and accountabilities are clear for all roles within the agency.	• The Data and Information Steering Group reviews the data and information accountabilities periodically to improve practices and controls for the agency.
L5 Data and information accountabilities are defined and embedded in day to day practice, and continually monitored and reviewed. They underpin that data and information is a valuable asset throughout the agency.		

We Embed Our Data and Information Responsibilities

Executive Sponsorship	Data and Information Policy and Standards	Data and Information Accountabilities	**Data and Information Training**	Data and Information Performance Measures

Has any data and information training been organized and performed?

Levels	Typical Behaviours	Typical Steps
L1 No requirements for data and information training have been identified or recognised.	The need for data and information training recognised but no formal training developed or undertaken.	• Develop training needs assessment. • Create a value proposition to highlight the need for data and information training. • Promote that value proposition to tier 1 & 2 executives. • Create a high level data and information training roadmap. • Conduct a policy compliance analysis. • Use the result from the compliance analysis to identify data and information training requirements.
L2 Policy compliance analysis is used to identify data and information training requirements. A data and information training roadmap exists.	Compliance training at a basic level for all staff defined and delivered.	• The Education and Communication s Forum identifies needs for all staff. • Develop compliance training material. • Roll out the data and information trainings
L3 Business unit-level data and information training is used to embed data and information policy.	Specific role-based training for data and information awareness, responsibilities and accountabilities developed and delivered.	• The Education and Communications Forum enhances the data and information training to include data and information measurements • Roll out the advanced data and information trainings
L4 Business unit-level data and information training is used to embed data and information policy and enhanced to support data and information measurement.	All employees fully aware of specific responsibilities and accountabilities for data and information for their role and for those in up-stream and down-stream business processes/units.	• The Education and Communications Forum enhances the data and information training to include data and information defect prevention. • Develop training for data and information diagnostic and process improvement areas. • Roll out the expert data and information training.
L5 Business unit-level data and information training is used to embed data and information policy and enhanced to support data and information measurement and to prevent defects and drive efficiencies.		

We Embed Our Data and Information Responsibilities

Executive Sponsorship	Data and Information Policy and Standards	Data and Information Accountabilities	Data and Information Training	Data and Information Performance Measures

Are there any performance measures applied at the individual role or business-unit level for staff who are tasked with gathering, processing and using data and information?

Levels	Typical Behaviours	Typical Steps
L1 No data and information measures exist to assess individual data performance.	The need for data and information measures is recognised but no formal work having has taken place.	• Based on the data and information management business case, KPI's and metrics are defined for tracking. • The Data and Information Steering Group defines what data and information performance measures mean for the agency. • Basic data and information performance measures are defined, tested and assessed against data and information policy and standards. • Basic data and information performance measures are documented and signed off and assigned to key individuals by the Data and Information Steering Group.
L2 Basic data and information measures are defined to assess data and information performance of key individuals.	Specific training, at business unit and individual level has been defined and delivered.	• Data and information performance measures are defined, documented, and signed off by Data and Information Steering Group. • Data and information performance measures communicated to all business units. • Business units embed the data and information performance measures in to their business processes. • Individuals are assessed against compliance and pragmatism.
L3 Data and information measures are defined and embedded with data and information accountabilities for all staff.	Data and information measures and dependencies defined and understood at agency and business unit level – these are continually reviewed.	• Data and information performance measures are integrated with data and information accountabilities for role descriptions. • Data and information performance measures become actively used to assess staff performance and to drive improvements in data and information quality.
L4 Data and information measures are defined, embedded with data and information accountabilities and actively used to assess staff performance.	Agency, business unit and individual performance metrics established and actively measured. Employee contracts specifically include data and information performance measures.	• Data and Information Steering Group reviews the data and information performance measures periodically to improved practices and controls for the agency.
L5 Data and information measures are defined, embedded with data and information accountabilities and used for continual improvement and development of data practices and controls.		

We Share a Data and Information Language

Data and Information Definition Forum | Master Data Management Framework

Has the agency established a forum that approves data and information definitions, structures and metadata?

Note: Metadata = 'data about data". It provides information about data entity's content. For example, an image may include metadata that describes how large the picture is.

Levels	Typical Behaviours	Typical Steps
L1 No agency forum exists to oversee data and information definitions, structures and metadata.	Common areas of data are understood by stakeholders and activities/workshops have taken place to derive the definitions of the common data and information assets.	• Data and Information Steering Group identifies the need for an agency wide Data and Information Definition Forum and identifies appropriate members to the Data and Information Definition Forum. • Guiding principles are provided to the Data and Information Definition Forum to shape this work.
L2 An agency forum exists which is empowered to develop processes to create common data and information definitions, structures and metadata.	Majority of data and information assets defined and agreed via the Data and Information Steering Group. Data and information dependency understood and documented.	• Data and Information Definition Forum defines, agrees and documents the data and information definitions, structures and metadata for the majority of the data and information assets. • The Data and Information Definition Forum communicates the data and information definitions, structure and metadata to stakeholders.
L3 Common data and information definitions, structures and metadata exists and an agency specific Data and Information Definition Forum is empowered to agree data and information definitions, structures and metadata.	Data and Information Steering Group has sign-off responsibility for all business cases, data and information requirements and solution designs. IT design governance dependent on Data and Information Steering Group sign-off for data and information.	• Implementation of a recurring, scalable data and information definition, structure and metadata validation methodology. • Data and Information Steering Group conducts periodic audits to assure the quality and compliance of the data and information definition, strictures and metadata. • Data and Information Steering Group approves and oversees the use and implementation of data and information definitions , structures and metadata within projects.
L4 Common data and information definitions, structures and metadata exists and an agency Data and Information Definition Forum is accountable for the control and assurance of data and information definitions, structures and metadata.	Data and Information Steering Group is actively engaged as partner for all AoG-level data and information requirements and understanding.	• Implementation of a proactive data and information definitions, structure and metadata validation methodology for the business lifecycle.
L5 Common data and information definitions, structures and metadata exists and is controlled by the agency Data and Information Definition Forum. The agency Data and Information Definition Forum challenges, scrutinises and monitors all changes to data and Information definitions, structures and metadata.		

We Share a Data and Information Language

Data and Information Definition Forum | **Master Data Management Framework**

Has the agency established a framework to simplify the master data and information landscape into a small number of high quality data and information assets?

Note: Master data represents the business objects, for example 'customer', 'product', 'employee', 'vendor'; which are agreed on and shared.

Levels	Typical Behaviours	Typical Steps
L1 There is no agency view of core master data and information and no agreement on data and information definitions or aggregation rules and there is a poor understanding of data and information lineage.	Data and Information Steering Group has sponsored work (via Data and Information Definition Forum) to identify the data and information assets in the conceptual subject areas and agree their definitions between all business unit areas.	• Identify and agree the core master data and information assets, their definitions and aggregation rules. • Develop the first draft of the core master data and information assets lifecycle and their origins.
L2 There is an agency approach to identifying differences in core master data and information definitions and developing aggregations rules with an understanding of data and information lineage.	Definition of data and information assets mostly complete and approved. Definitions exposed to wider audience via Education & Communication Forum.	• Identify, agree and document the core master data and information assets, their definitions and aggregation rules and finalize the core master data and information assets lifecycle. This forms the basis for the Master Data Management Framework. • Ensure that the master data that is identified as core is linked to business priorities. • Socialize the Master Data Framework to all business units.
L3 There is an agency Master Data Management Framework in place to agree and share core master data and information definitions and to embed aggregation rules.	The Conceptual and Logical Data Model for the agency is substantively defined and agreed and all designs are based on these models.	• Design data architecture and data model according to the Master Data Framework. • Data and Information Steering Group signs off the conceptual and logical models and then governs against them to ensure compliance and their intended use. • Harmonize the master data landscape.
L4 The agency Master Data Management Framework is proactively used to remove data and information redundancy in the data architecture, the data models and metadata so they contain only high quality data and information assets.	Conceptual and Logical models are defined and used as baselines for all data and information work. Physical models also defined for major platforms and applications.	• Implement of a methodology to continually monitor and refine Master Data Management processes. • Improve and optimize master data and information flows and synchronisation
L5 The agency Master Data Management Framework is proactively used to remove data and information redundancy and is used to continually monitor and refine processes, which are used to control the data architecture, the data models and metadata environments.		

We Assure Our Data and Information Quality

Data and Information Quality Forums	Data and Information Quality Framework	Data and Information Change Control	Data and Information Measurement

Does the agency have a forum established , sponsored by executives, which is accountable for the data and information quality?

Levels	Typical Behaviours	Typical Steps
L1 No agency forum exists to oversee data and information quality.	Data and Information Quality Forum exists under banner of Data and Information Steering Group but doesn't recognise full scope of data and data quality measures. Tends to be system-driven rather than data and information-driven.	• Develop a value proposition for high quality data and information. • Data and Information Steering Group identifies appropriate members for the Data and Information Quality Forum, comprising of tier 2 executives. • Data and Information Quality Framework developed, documented and endorsed by Data and Information Steering Group. • Data and Information Quality Framework is communicated to all business units.
L2 There is an agency forum, supported by all business units, empowered to develop a Data and Information Quality Framework for business units.	Data and Information Quality Forum definition and responsibilities understood and documented. Data and Information Quality measured in Golden Source platforms. Statutory guidance given about where high quality data and information is to be used/sourced from.	• Define the system of record (golden source) to a given data and information asset. • Develop master data and information management strategy. • The Data and Information Quality Framework is embedded in to business units day to day operations. • Communication of definitions and responsibilities is undertaken to stakeholders. • Agreement by Data and Information Quality Forum on what needs to be assessed, when and how.
L3 An agency specific Data and Information Quality Forum exists which is empowered to embed agency Data and Information Quality Framework to support development of strategic data and information capabilities.		
L4 An agency Data and Information Quality Forum exists and is accountable for the control and assurance of high quality data and information.	Data and Information Quality Framework for all data and information assets are documented and continually assessed. Front-line systems provide full validation OR active Data and Information Quality measurement performed on data from non-compliant platforms.	• Implementation of a recurring, scalable data and information quality assessment and validation methodology. • Data and Information Steering Group conducts periodic audits to assure Data and Information Quality Forum compliance. • Implement Master Data Management technology.
L5 The agency Data and Information Quality Forum controls and assures the high quality data and information challenges, scrutinises and monitors all data and information quality and remediation activities.	Data and Information Quality remediation a diminishing task as controls and measurement happen at the beginning of the business lifecycles.	• Implementation of a proactive data and information quality assessment and validation methodology across the whole business lifecycle.

We Assure Our Data and Information Quality

Data and Information Quality Forums	**Data and Information Quality Framework**	Data and Information Change Control	Data and Information Measurement

Is there a Data and Information Quality Framework, which includes data and information definitions, reference data and information, metadata; and formalizes high quality data and information assurance?

Levels	Typical Behaviours	Typical Steps
L1 There is no agency approach for high quality data and information assurance.	Data and Information Quality measures for some data and information assets understood and enacted. Full life-cycle of data and information usage not fully understood or documented.	• Identify and agree core data and information assets. • Develop an inventory of core data and information assets and systems. • Develop first draft of the core data and information asset lifecycle. • Identify candidate quality measurements.
L2 An agency Data and Information Quality Framework has been developed and adopted by all business units.	All data and information assets have definition and quality metrics understood and used. Dependency between business units understood and socialised.	• Identify and agree on all data and information assets. • Identify and document high level quality measurements • Finalize data and information lifecycle. • Establish priorities based on the underlying business case. • Document and socialize data and information quality framework to all business units.
L3 An agency Data and Information Quality Framework exists and is embedded in the processes of all business units.	Quality metrics embedded within data and information validation and movement. ETL processes (where appropriate) provide Data and Information Quality measurement.	• Embed the data and information quality metrics in the agency • Deploy quality metrics in appropriate data and information transfer. • Measure baseline improvements and track benefits.
L4 An agency Data and Information Quality Framework exists and is embedded in all business units' processes. Agency oversight and testing has been extended to incorporate testing data and information quality (via audits / assurance / reviews).	Continual Data and Information Quality improvement takes place across entire IT and (diminishing) End User Computing landscape.	• Implement a method to continually improve the data and information quality measurement using the Data and Information Quality Framework. • Continuously improve by scanning for optimization opportunities.
L5 The agency Data and Information Quality Framework is used to do high quality data and information measurements, drive root cause analysis and to remediate data and information quality issues by designing defect prevention controls.		

We Assure Our Data and Information Quality

Data and Information Quality Forums	Data and Information Quality Framework	**Data and Information Change Control**	Data and Information Measurement

Is data and information considered within the change management lifecycle?

Note: Change control for data and information is as important as change control for business processes and IT platforms.

Levels	Typical Behaviours	Typical Steps
L1 Business units implement data changes without agency control or oversight.	Data Architecture principles understood and implemented. Data and Information Steering Group has sign-off on all data and information work.	• Data and Information Steering Group's data architecture documentation is incorporated in to the agency change management lifecycle. • Data and Information Steering Group commissions a comprehensive data architecture training programme agency wide through the Education and Communication Forum. • Data and information change processes are developed/improved to ensure all data and information related changes come though the Data and Information Steering Group. • Data and Information Steering Group has signoff authority for all data and information changes.
L2 The agency change management lifecycle is enhanced to include data architecture, data and information language, validation, transfer and delivery of high quality data and information standards and management.	All data and information work is controlled via Data and Information Steering Group approval mechanism. Templates for business & IT project work embedded in business case lifecycle.	• Data and Information Steering Group developed templates and documentation embedded into project templates in the business case lifecycle. • Documented and communicated to all business units. • All business units embed the data and information change control process in their day to day practice.
L3 The agency has an integrated change control across business units which includes data architecture, data and information language, validation, transfer and delivery of high quality data and information standards and management..	Data and information awareness across all business units and IT is well understood. Portfolio view is predominantly about data and information process. Less 'point' solutions proposed or required.	• Build formal impact assessment tools and collateral to support the analysis of proposed changes, • The Data and Information Steering Group delegates change and signoff authority to key business unit s for their core data and information changes with Data and Information Steering Group oversight. • The Data and Information Steering Group evaluates the impacts of the data and information change control within each business unit.
L4 The key business units are consulted on and empowered to challenge and sign off all data and information changes.	Change control process is predominantly about the changes needed for new data and information assets (via wider government and legislation). Internally, change control drives system enhancement and requirements / solutions.	• The Data and Information Steering Group periodically reviews the data and information change control practices within the business units to ensure data and information change control compliance is met. • Proactively assess and improve the data and information change control practices across business units. • Develop roadmaps with priorities to plan out substantive data changes for strategic improvements
L5 All changes relating to data and information governance, quality, management, key reporting are scoped, defined and impact assessed by the agency Data and Information Steering Group. Business units monitor and challenge all data changes/issues as they arise.		

We Assure Our Data and Information Quality

Data and Information Quality Forums	Data and Information Quality Framework	Data and Information Change Control	**Data and Information Measurement**

Is there a guide for data and information measurement, i.e. to perform data and information quality analysis and/or data and information profiling across major IT platforms and end user computing assets?

Levels	Typical Behaviours	Typical Steps
L1 There is no consistent approach to data and information measurement.	Processes and documentation for some major data and information assets are known and enacted though not consistent over the systems landscape	• Data and Information Quality Forum, through the Data and Information Quality Framework, identifies data and information measures. • Data and Information Quality Forum develops and documents processes to align with the data and information measures, including data and information remediation practices. • Major data and information assets are identified and documented. • Priorities are established based on business value.
L2 Processes have been developed to assess data and information quality, validation and remediation.		
L3 Processes are embedded to assess data and information quality, validation and remediation.	Data and information definition and quality metrics (including correct use of reference data) now documented in Data and Information Asset Catalogue and used as requirements for system remediation	• Embed processes so that data and information quality issues are identified and can be acted on proactively. • Data and Information Quality Forum to document Data and Information Definitions and Quality Metrics. • Outline which data and information assets should reside in what major systems. • Begin identifying major End User Computing.
L4 Processes are embedded to assess data and information quality, validation and remediation. The development of real time data and information measures is integrated into process improvements (for example Lean Six Sigma).	Data and Information Quality measurement (both automatic and manual) are in place for major areas of IT and End User Computing landscape.	• Operationalize the performance measures in the major systems and extend this to End User Computing. • Integrate data and information quality measurement into business processes and begin process improvement. • Reuse data and information process baselines and track benefits.
L5 Data and information measures and related KPIs are integrated into processes and are used to drive strategic data and information investments decision and to provide predictable and measurable ROI benefits.	Data and Information Quality measurement in place across all major IT and End User Computing platforms, as well as for incoming and outgoing data and information ensuring Straight-through processing is the norm.	• Use the optimized processes to simplify the system landscape and being adopting architectures like straight-through processing. • Integrate data and information measures with KPI's and use these measures as a foundation for IT investments. • Extend data measures across all systems and End User Computing solutions .

We Use Our Data and Information Wisely

Business Reporting Forums | Business Reporting Framework | Data and Information Tools

Does your agency have a centralised coordinated reporting process?

Levels	Typical Behaviours	Typical Steps
L1 Agency reporting processes are not known, unclear or ad hoc.	Data and Information Steering Group includes an element of "critical" reporting. Unclear as to dependency between IT and End User Computing landscapes.	• Data and Information Steering Group defines and documents the roles and responsibilities for key reporting process and communicates them key business units. • Key reporting processes are captured , documented and communicated.
L2 The agency has defined roles and accountabilities for key reporting processes.	Data and information underpinning critical reports well understood and documented. Proper analytical capability being built. Start to see end user computing landscape diminishing.	• Data and Information Steering Group establishes the Business Reporting Forum with the mandate to develop strategic capability to improve key reporting processes and aligns with data policy. • Reports are harmonized and overlaps are rationalized.
L3 The agency has established a Business Reporting Forum to identify and develop strategic capabilities for key reporting processes.	All round awareness of the data and information world is apparent across the agency. Very few requests for management information or analytics cannot be satisfied within a day. Enterprise Data Warehouse substantively implemented.	• Strategic capabilities further enhanced for key reporting processes. • Enterprise Data Warehouse is implemented. • Data and information subject areas are controlled across the different business units.
L4 The agency Business Reporting Forum is empowered to develop and embed strategic capabilities for key reporting processes.	True Enterprise-level Data Warehouse implemented and continually improved in line with Data/Process changes.	• The Business Reporting Forum reviews the key data reporting processes ensure compliance is met. • Business Reporting Forum proactively assess and improves the key reporting processes across business units. • Audits and data and information quality health checks provide objective feedback and reporting quality
L5 The agency Business Reporting Forum is empowered to develop and embed strategic capabilities for key reporting processes. It challenges, scrutinises and oversees all changes for key reporting processes.		

We Use Our Data and Information Wisely

Business Reporting Forums | **Business Reporting Framework** | Data and Information Tools

Does your agency understand and promote the implementation of a framework that allows comprehensive and timely reporting from a central repository?

Levels	Typical Behaviours	Typical Steps
L1 Agency reporting processes are unclear or poorly documented and are often manual and labour intensive.	Dependencies for data and information for critical reports is known and documented though a combination of IT and End User Computing is still prevalent.	• Business Reporting Forum identifies the key data and information processes required for reporting. • Requirements are documented and communicated to all business units.
L2 There is an agency approach to document and control the data and information processes for reporting.	Design for data warehouse mostly complete. Less justification for end user computing . Ad-hoc creation of reports via end user computer is robustly challenged by Data and Information Steering Group.	• Key data and information process documentation is complete forming the basis for the Business Reporting Framework. • Business Reporting Framework is socialized to key business units. • Key dimensions and KPI's are conformed across the business.
L3 There is an agency Business Reporting Framework in place to agree and control the data and processes for reporting.	All business units & executives have common under-standing of data and information requirements. Enterprise Data Warehouse design complete and widely understood.	• Business Reporting Framework is proactively used to ensure compliance is met for key data and information business processes required for reporting. • Data "scrubbing" and cleansing rules are documented and formalised. • Data and information quality and consistency checks are formalised and embedded in the ETL framework that underpins the reports.
L4 The agency Business Reporting Framework is proactively used to monitor and control the data and information flows and processes for reporting .	All business units and tier 2 have access to information they require intra-day and inter-day. The agency able to satisfy external enquiries from wider government perspective and regulator efficiently and with confidence that the supplied information is correct.	• Business Reporting Framework is under full change control by the Business Reporting Forum and is used for continual improvement for both internal and external reporting. • Changes to KPI's, data and information definitions and rules are formally controlled with proper reasoning.
L5 The agency uses the Business Reporting Framework to control, monitor and continually refine and simplify the data and information flows and processes for reporting.		

We Use Our Data and Information Wisely

Business Reporting Forums	Business Reporting Framework	**Data and information Tools**

Does the agency understand and exploit the capabilities of data and information tools?

Note: Data and information tools can include: data and information profiling, modelling, management, reporting and analytics.

Levels	Typical Behaviours	Typical Steps
L1 Any data and information tools are employed haphazardly and without governance or alignment to data and information accountabilities.	Clarity on toolsets required for data and information management, operational and analytical use is clear. Architecture framework established.	• Define the necessary data and information tools based on requirements. • Extend the agency data and information policy to include data and information tools, their purpose and their associated accountabilities. • Align data and information policy with the enterprise architecture polices, with a particular focus on tool requirements and their specific integration points.
L2 Agency data and information policy covers accountability for data and information tools.	Toolsets identified and used. Use of similar toolsets challenged robustly. End user computing landscape decreases. Systems identified as "Masters" for data and information sets.	• Data and Information Steering Group mandates the use of tools along with their purposes. • Data and Information Steering Group assigns particular systems as “masters” for particular data and information sets. • Communicate the tools, their purposes and masters for data and information sets to key business units.
L3 Agency data and information policy mandates the consistent use of defined data and information tools for specific purposes.	Data and Information Steering Group periodically assesses tooling and purpose across key business units . Data and Information Steering Group proactively supports the removal of duplicate and/or redundant tools across key business units. A roadmap with priorities and future tool capability is developed.	• Embed data and information governance accountabilities and management activities in to respective data tools. • Data and Information Steering Group oversees the compliance of the data and information governance accountabilities for tools and their purpose. • Agency introduces advanced tooling based on the data and information policy and clear purpose for the tool to help support data architecture, data and information policy, mapping and reporting. • Data and information related KPI’s are captured, tracked and monitored through the tools.
L4 The agency data and information governance accountabilities are embedded into key data and information tools. Advanced tools are used to support data and information quality, architecture, mapping or reporting.		
L5 Advanced data and information tools are used throughout the agency to enable proactive monitoring and management of data and information issues and to support a defect prevention culture.	Data and information toolsets are integrated and used co-operatively. Single implementation of data and information capabilities is the norm, i.e. no multiple Extraction – Transformation- Load or profiling tools.	• Data and Information Steering Group periodically assesses tooling and purpose across key business units . • Data and Information Steering Group proactively supports the removal of duplicate and/or redundant tools across key business units. • A roadmap with priorities and future tool capability is developed.

Groups and Forums

Data and Information Steering Group

Item	Description
Purpose	• Provide mandate to subordinate forums for the purposes described in their Terms of Reference • Sign-off on the deliverables produced by the sub-forums • Provide assurance and direction for data to agency Design Authority, Investment Board & EPMO & AoG Information Council
Terms of Reference	See embedded document
Membership	Tier 2 managers, from all business units within the agency and Chief Architect.
Chair	Tier 2 agency "Data and Information Champion" – not necessarily from the NZDFF
Audience	Data and Information Definition Forum, Data and Information Quality Forum, Education & Communication Forum
Frequency	At least monthly/bi-monthly
Agenda	• Minutes • Current legislation principles and actions • Alignment with agency data and information strategy/AoG "Information Treated as an Asset" • Investment Board / Enterprise Design Authority decisions required • Data and Information Definition Forum submissions for update/sign-off • Data and Information Quality Forum submissions for update/sign-off • AoB
Reports To	All of Government "Data and Information Council"
Notes	The Data and Information Steering Group accepts "custodianship" of the data and information that agency uses and assigns Data and Information Stewardship to internal roles within the agency (at tier 3-4 level)

Data and Information Definition Forum

Item	Description
Purpose	• To develop an agency-wide view of all the data, KPI's & metrics that are required to ensure the agency operates optimally • Develop a common data and information language for consistency of understanding through out the agency and AoG
Terms of Reference	See embedded document
Membership	Tier 3/4 SME's from each business unit. Expected to be knowledgeable in the business processes that are inherent in their area and the data that is used by each process. They collectively provide a "data" body-of-knowledge for the agency. Includes the Enterprise Data Architect
Chair	Nominated by agency Data and Information Steering Group
Audience	Tier 3/4/5 employees in the agency
Frequency	Monthly at least, fortnightly preferably. N.B. the Data and Information Definition Forum isn't a long-term forum, it can complete it's work within 6-12 months, dependent on the size of the agency.
Agenda	
Reports To	Agency Data and Information Steering Group / All of Government Data and Information Definition Forum - this forum will co-ordinate the activities across agency Data and Information Definition Forums
Notes	• Data and information definition work is led by an Enterprise Data Architect and the intention is to build an enterprise-wide logical data model with constituent metadata that covers all of the agency. • The starting point is the conceptual data model and focus can be placed into each conceptual area as appropriate. • The group is to concentrate on data and information that is internal to the agency, i.e. data that the agency create/manage/use that is specific to their agency. • A secondary consideration is data that they use which is "external" to them but which they rely on. An example of this is "organisation" data, which is defined, managed and maintained by NZ Companies House. This is data that is used by many agencies but is actually controlled externally to the particular agency, therefore the definition created and maintained by NZ Companies House is to be "noted" by the Data and Information Definition Forum within each agency and is not required to be discussed/defined by them. The "Master" agency takes responsibility for the definition of these data and information assets. In this example, each agency concentrates on the "roles" that external organisations play in conjunction with the agencies, rather than the definition of the organisations themselves.

Data and Information Quality Forum

Item	Description
Purpose	To gather information about the current data and information quality issues and to manage the data and information change control.
Terms of Reference	See embedded document
Membership	Tier 3/4 SME's from each business unit. They are expected to be knowledgeable in the business processes that are inherent in their area and the data and information that is used by each process. Collectively, they provide a "data" body-of-knowledge for the agency. Includes the Enterprise Data Architect. They will have in-depth knowledge of the current data and information quality issues that affect their particular business unit
Chair	Nominated by agency Data and Information Steering Group
Audience	Tier 3-4 employees in the agency
Frequency	Monthly at least, fortnightly preferably. t can be re-started if and when new data and information assets are specified by internal or external parties.
Agenda	
Reports To	Agency Data and Information Steering Group
Notes	Develop and maintain a data and information quality issues register that accurately defines: • Issue • Root cause • Effects (Financial – what is the cost for re-work, remediation? - Regulatory/Legislative breaches, …) • Metrics/measurements • Fixes - data and information scope, process, responsibilities, systems affected (upstream and downstream from where data quality issue is perceived to occur) • Business units affected • Prioritisation • Internal/External fixes required? • Change requests

Knowledge Management Forum

Item	Description
Purpose	• To develop an agency-wide view of all business reporting that are required to ensure the agency operates optimally • Develop a centralised coordinated reporting process.
Terms of Reference	See embedded document
Membership	A small selection of tier 3/4 SME's from across the agency, including the HR & Internal Communications and the Enterprise Data Architect
Chair	Nominated by agency Data and Information Steering Group – expected to be a tier 3 from HR & Internal Communications.
Audience	All employees in the agency
Frequency	Monthly
Agenda	
Reports to	Agency Data and Information Steering Group
Notes	

Data and Information Education and Communication Forum

Item	Description
Purpose	To develop education and communication material for the agency to increase the knowledge across the agency
Terms of Reference	See embedded document
Membership	A small selection of tier 3/4 SME's from across the agency, including the HR & Internal Communications and the Enterprise Data Architect
Chair	Nominated by agency Data and Information Steering Group – expected to be a tier 3 from HR & Internal Communications.
Audience	All employees in the agency
Frequency	Monthly
Agenda	
Reports to	Agency Data and Information Steering Group
Notes	

Glossary

Glossary

Term	Definition
Data and Information Management	Data and Information management is the collection and management of information from one or more sources and the distribution of that information to the right audiences. Management means the organization of and control over the planning, structure and organisation, controlling, processing, evaluating and reporting of information activities in order to meet client objectives and to enable agency functions in the delivery of information.
Data and Information Governance	Data and Information Governance is the exercise of authority and control (planning, monitoring and enforcement) over the management of data and information assets.
Data and Information Governance Policy	Are short statements of management intent and fundamental rules governing the creation, acquisition, integrity, security, quality, and use of data and information. Effectively they provide the mandate to perform Data and Information Governance.
Data and Information Security	Data Security is the planning, development and execution of security polices and procedures to provide proper authentication, authorization, access and auditing of data and information assets. This is often driven by external legal and regulatory requirements.
Data and Information Accountabilities	A responsibility adopted by a Tier-2 role (which can have delegation but which retains overall accountability) who is responsible for their data and information assets and must be able to give a satisfactory reason for any changes within the data and information lifecycle.
Data and Information Definition	This is the all-encompassing term that includes rules, metadata, reference data, etc.
Data and Information Rule	Data and Information Rules are concerned with the definition, validation and processing of data and information assets. They will also define the nature of relationships between data and information assets.
Data and Information Validation	Data and Information Validation is the process by which data and information remediation steps are taken and their results are viewed with the data and informaiton owner.

Glossary

Term	Definition
Aggregation Rules	A form of data and information rule metadata – the rules for data and information assets that are aggregate values, this will also consist of calculation formulae
Metadata	In its simplest form, metadata is prescriptive and descriptive information about a piece of data, it provides definition and context for a data and information asset. It encompasses the necessary data rules, quality measures, reference data values, level of security/protection, ownership/accountability and links to the processes that create or use the data and information asset.
Reference Data and Information	Is control over defined domain values, including control over standardized terms, code values, and other unique identifiers, business definitions for each value and business relationships within and across domain value lists. Typically, it does not change overly much in terms of definition (apart from occasional revisions). Reference data and information often is defined by standards organizations (such as country codes as defined in ISO 3166-1).
Data and Information Quality Analysis	The process of assessing data and information and to reveal potential anomalies.
Data and Information Profiling	The attempt to qualify data and information through a process of analysis and discovery.
Data and Information Quality Assurance	Is the process of profiling the data and information (using the metadata rules) to identify any deviations from agreed standards, discover inconsistencies, and other anomalies in the data and identifying and quantifying data cleansing activities.
Data and Information Quality Measure	Are a set of expectations that help identify root causes of data and information quality issues.
Data and Information Quality (Management)	Planning, implementation and control activities that apply quality management techniques to measure, assess, improve, and ensure the fitness of data and information for use.

Glossary

Term	Definition
Data and Information Quality Framework	Data and Information Quality Framework is defining the requirements, inspection policies, measures and monitors that reflect changes in data and information quality and performance.
Data and Information Quality Standards	A set of standards based on the data and information definition rules. The rules can be used to profile the data and information and measure the fitness for purpose. The measures can be a driver for data and information remediation activities – where the standard of a data and information asset is below par, the definition rules can be used to conduct data and information remediation/cleanse activities.
Data and Information Remediation	The process of correcting data and information quality issues based on a set of predefined criteria or strategy. The criteria are set within the data and information definition rules
Data and Information Language	A consistent language and terminology that is used across the agency. This is a feature of an organisation that has mature data and information governance.
Master Data Management (MDM)	Master Data Management is a process that spans all organizational business processes and application systems and can provide companies with the ability to create, store, maintain, exchange, and synchronize a consistent, accurate, and timely "system of record" for the core master data elements.
Data and Information Landscape	The interactions between technology and applications in terms of the data and information movements, changes, and behaviour. The landscape constitutes the IT Systems that are used to help run the agency as well as the EUC assets developed and used within the business areas.
Core Master Data	The highest level of master data and is at the conceptual level of the data model. For example, Product, Party or Agreement.
Data and Information Lineage	Is being able to the trace the derivation of all data and information assets that appear in any important Performance Reports and Management Information, including: • Who owns the original source data; • What validation and transformations are applied to the data and information in its life cycle. • The dependencies that aggregated values have on particular data and information assets

Glossary

Term	Definition
Data and Information Redundancy	Data and information redundancy is a by-product of having multiple systems that contain the similar data and information types (i.e. Customer). The data and information is needlessly replicated and can become out of date thus leading to inconsistency.
Data Architecture	Is an integrated set of specification artefacts used to define data and information requirements (metadata), guide integration and control of data and information assets, and align data investments with business strategy.
Data Model	Is a set of data and information specifications and related diagrams that reflect data requirements and designs. Data models focus on the data and information business rules. This includes conceptual, logical and physical models.
Data and Information Dictionary	Contains a collection of domains and the attributes that relate to each domain. A domain is the complete set of all possible values for an attribute and an attribute can never contain values outside of its assigned domain.
Data and Information Structure	Is a particular way of storing and organizing data and information and provides a means to manage large amounts of data and information efficiently. Structures can vary depending on the intended use of the system.
Data and Information Flow (or Transfer)	The movement of data and information between applications either electronically or manually.
Central Repository	A repository that gathers data and information from the operational platforms to perform agency-wide reporting. Also known as a Data Warehouse
Data and Information Change Control	The process of continually assuring that data and information definitions (metadata) and reference data and information are fit for their intended purpose and ensuring consistency across the landscape
Data and Information Tools	A set of tools that can be used to assist the correct management and use of data. Data Modelling, ETL (Data and Information Movement), Reference Data and Information Management, Analytics and Reporting
Lean Six Sigma	Lean Six Sigma seeks to improve the quality of process outputs by identifying and removing the causes of defects (errors) and minimizing variability in manufacturing and business processes.