

# Victorian Centre for Data Insights

Data governance as an organisational capability

# Topics covered

- Introduce VCDI
- Define 'data capability'
- Argue that data governance is the most important factor
- Discuss some of the issues with data governance in the VPS
- Explain what VCDI is attempting to do about it

## capability

*noun* [ C or U ]

UK  /,keɪ.pə'bil.ə.ti/ US  /,keɪ.pə'bil.ə.tj/

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**capability** *noun* [ C or U ] (ABILITY)

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**C1**

the ability to do **something**:

Cambridge Dictionary definition

# Victorian Centre for Data Insights



VCDI is the Victorian Government's centre of excellence for data and analytics. It drives a critical agenda for the Victorian Public Service.

Our partnerships and projects help deliver key commitments, improve the government's bottom line, and develop data capability across the VPS.



```
require
var express = require('express')
var router = express.Router()
var User = require('../models')

// GET /register
router.get('/register', function (req, res) {
  return res.render('register')
})

// POST /register
router.post('/register', function (req, res) {
  if (req.body.email &&
    req.body.name &&
    req.body.favoritebook &&
    req.body.password &&
    req.body.confirmPassword) {

    // confirm that user typed same
    if (req.body.password !== req.bo
      var err = new Error('Passwords
        err.status = 400;
        return next(err);
      }

    // create object with form input
    var userData = {
      email: req.body.email,
      name: req.body.name,
      favoritebook: req.body.favoritebook,
      password: req.body.password
    }

    // schema's 'create' method to insert
    create(userData, function (error, user
      (error) {
        // next(err);
      }
    )
  }
}
```

# Building data capability: a common mis-step

“Data (and its analysis) is the most significant renewable resource discovered this century.”

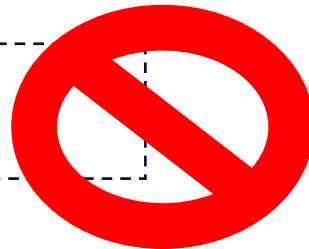
Productivity Commission, *Shifting the Dial*



We need to build data and analytics capability



Quick, hire some data scientists!



# Defining data capability

## capability

noun [C or U]

UK  /ˌkeɪ.pəˈbɪl.ə.ti/ US  /ˌkeɪ.pəˈbɪl.ə.ti/

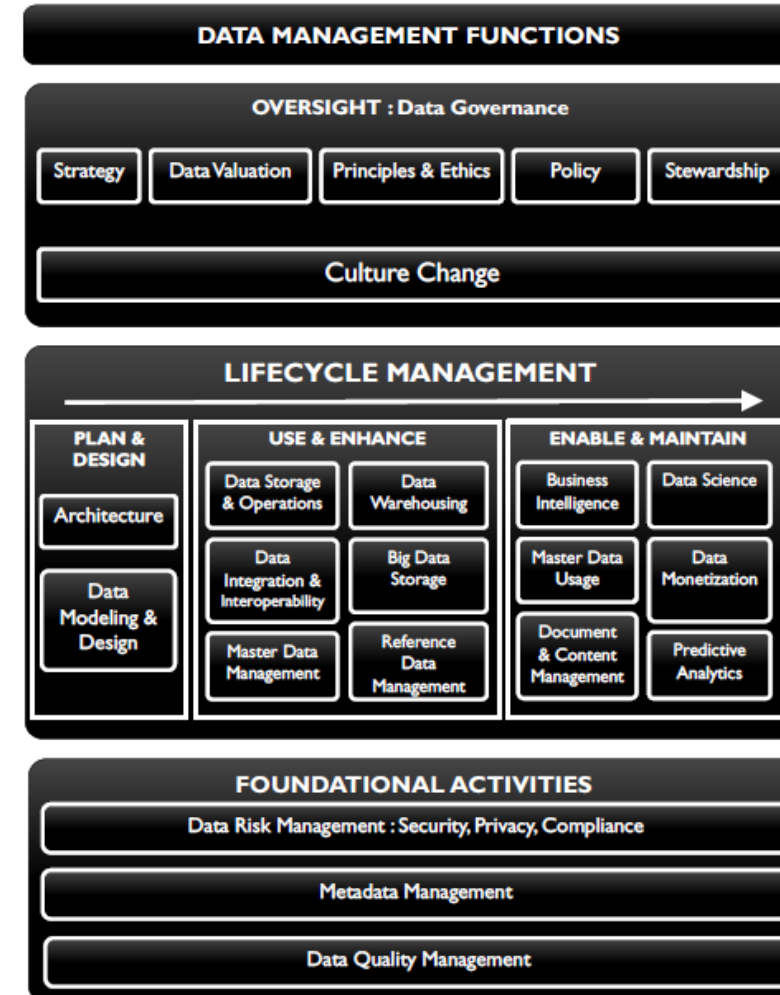
**capability** noun [C or U] (ABILITY)

**C1**

the ability to do **something**:

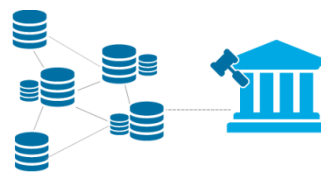
All of these functions are the "something"

## DAMA Data Management Body of Knowledge



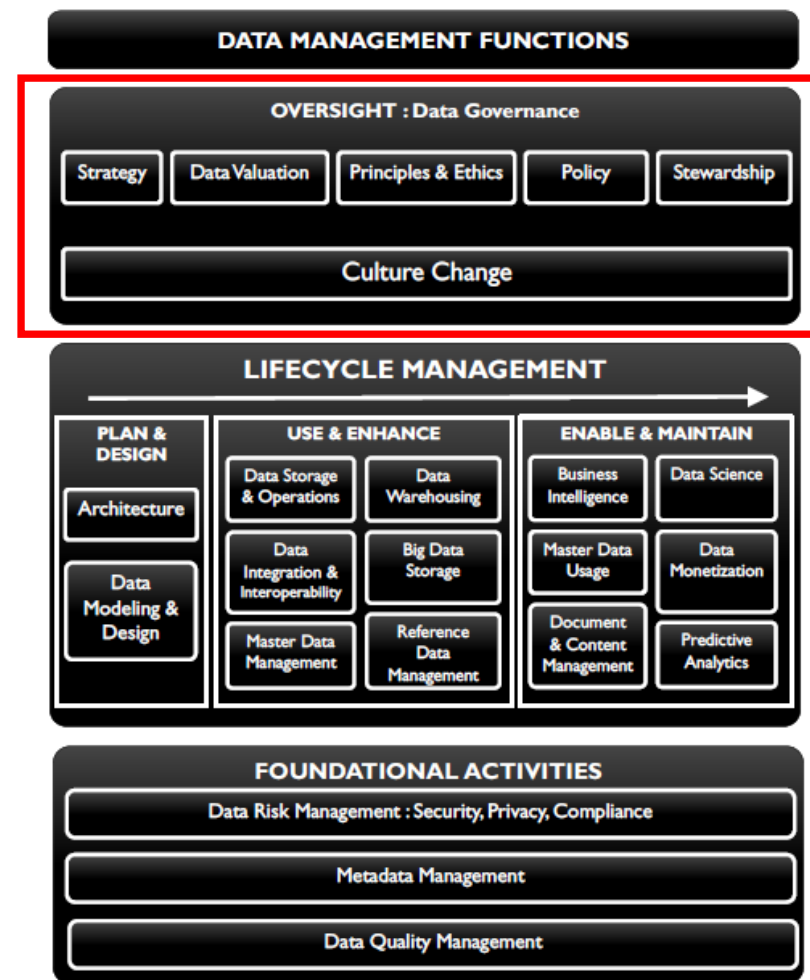


# Data Governance: the top layer



- DG is the strategic layer that sits above other data management functions. It is:
  - “The exercise of authority and control (planning, monitoring, and enforcement) over the management of data assets.” (DAMA)
- DG is the most important factor in an organisation’s ability to derive value from data.
- It is the only way to drive a coordinated data management program
- DG is the job of **business executives, not IT**. If it’s delegated, it’s dead.

*The most common definitional mistake companies make is using “data governance” synonymously with “data management.”*  
*Jill Dyché and Kimberly Nevala*



# Data governance must focus on the big questions

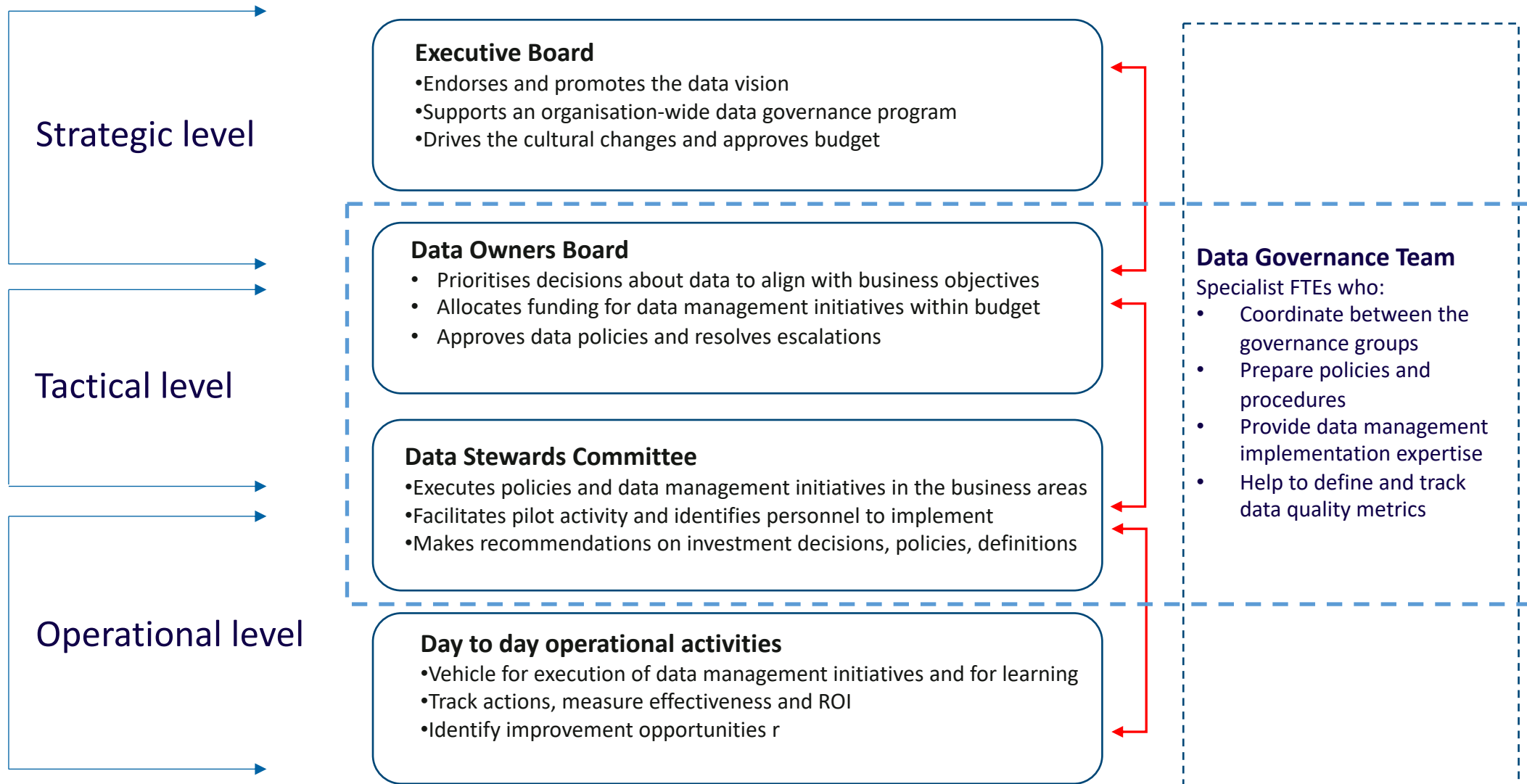
DG focuses on insights, savings, and risk. It tackles questions like:

- What business objectives and questions can't we address due to poor quality or missing data?
- How can we use our data to find savings and reduce waste?
- Which investments in our data will give us the best ROI?
- Where do we need to share or acquire data to unlock insights and savings?
- Are we using consistent terminology for data, for example when we talk about 'peak hour' or 'client'?
- Do our policies aid good data management, or do they create confusion and unnecessary red tape?
- Where are our big exposures in terms of privacy, ethics, and poor quality data?



*By focusing executive attention on these types of questions, DG is the best vehicle for building executive data literacy.*

# The mechanics of data governance





# Regulation is driving data governance globally



Figure 21: Regulatory Compliance

From Dataversity report, Trends in Data Governance:

[https://s3.amazonaws.com/external\\_clips/2956460/7\\_74342\\_TrendsInDataGovernanceandStewardship\\_final.pdf?1547483532](https://s3.amazonaws.com/external_clips/2956460/7_74342_TrendsInDataGovernanceandStewardship_final.pdf?1547483532)

*Infringements of GDPR may be subject to fines up to 20,000,000 EUR, or up to 4 % of the total worldwide annual turnover of the preceding financial year, whichever is higher*

***“GDPR? Scary.”***

*Former Executive of  
US multinational*

## Three problems with data governance in the VPS

The VPS governs its data poorly, if at all. There are positive signs that agencies are beginning to take data governance seriously, but this opportunity will be lost unless we address the underlying problems.

	Problem	VCDI response
1.	In the absence of guidance, agencies are paying consultants for bespoke data governance frameworks, which is wasteful and creates fragmentation	Provide simplified, consistent data governance resources based on industry standards
2.	VPS agencies don't have the capability to run data governance programs, which means they fail to launch	Provide data governance expertise as a service until agencies can build internal capability
3.	Executives don't properly engage, because they don't see the value and don't see it as their problem	Facilitate targeted discussions with execs about the value they can generate through data governance

# Our commitment in the VCDI Strategy to address DG



## Response 2: Govern our data to maximise value and remove waste

When implemented in a strategic way, a strong set of decision rights and accountabilities enables an organisation to make efficient, informed choices about its data assets.

There are some barriers to achieving this. The Victorian Auditor-General has labelled the VPS information and data management environment “fragmented and confused”.<sup>8</sup> The current complexity contributes to a culture of delegating decisions to process and technical experts. This separates organisational investment decisions and data governance activities in ways that prevent value being derived from data assets.

This strategy responds by drawing on leading practices for accountability-based data governance. Contemporary thinking emphasises non-invasive and iterative implementation. This includes:

- Designing pilot initiatives to learn more about which approaches are most effective in each context.
- Investing in high-impact activities to educate executives about what can be achieved.
- Using champions and existing networks rather than enforcing rigid pre-defined processes at operational level.

### Actions

- A** Develop template documents for leading-practice data governance.
- B** Pilot a data governance coaching service with a VPS agency that has secured strong executive support.
- C** Refine the data governance approach and replicate in other VPS agencies.

VCDI Strategy available at the following link:

<https://www.vic.gov.au/victorian-centre-data-insights-strategy/introduction>

# A. Develop template documents for leading practice data governance

### Part 1: Governance structure

**Strategic level**

- Executive Board**
  - Endorses and promotes the data vision
  - Supports an organisation-wide data governance program
  - Recommends and approves funding for improvements
  - Puts data on the agenda and drives the cultural changes
- Data Owners' Council**
  - Prioritises decisions about data to align with business objectives
  - Allocates funding for data management initiatives within approved budget
  - Approves data policies and resolves escalations (incl. about data sharing)
  - Assigns accountabilities for key data holdings (i.e. 'stewards')
- Data Stewards' Committee**
  - Members are the best authority on the use of data in their business area
  - Executes policies and data management initiatives in the business areas
  - Facilitates pilot activity and identifies personnel to implement
  - Makes recommendations on investment decisions, policies, and definitions
- Day to day operational activities** (data management rather than DG)
  - Vehicle for execution of data management initiatives and for learning
  - Communities of Practice/Guides bring people together to share knowledge
  - Track actions, measure effectiveness and ROI
  - Raise improvement opportunities for Data Stewards Committee to consider

**Tactical level**

**Operational level**

**Data Governance Team**

Specialist FTEs who:

- Facilitate strategic and tactical discussions
- Coordinate between the governance groups
- Prepare policies and procedures
- Provide ongoing advice and expertise during implementation
- Help to define and track data quality metrics
- Report on the success of initiatives and ROI

Escalation, requests /

### Data Owners' Council Terms of Reference

**1. Purpose**

- The Data Owners' Council (DOC) is the senior **data governance**<sup>1</sup> body that ensures the [e.g. State Revenue Office] agency manages and uses its data effectively and responsibly.
- The DOC sets the priorities and makes binding decisions regarding **data management** and analytics activities across the agency, consistent with the agency's broader organisational objectives.

**2. Accountability**

- The DOC is accountable to the Executive Committee and the [Secretary/Commissioner] of the agency.

**3. Membership**


- The Executive Committee shall appoint the members of the DOC.
- The DOC membership shall consist of:
  - A Chairperson at the level of [Deputy-Secretary/Assistant Commissioner, etc]
  - A Deputy-Secretary or Executive-Director from each **business area** of the agency, who shall be the nominated **Data Owner** for the business area
  - The Chief Information Officer [and Chief Data Officer if applicable] of the agency.
- Individual members are listed in Schedule B, as updated from time to time.

**4. Duties and decision rights**

- The DOC shall have responsibility to:
  - Approve an **Accountability Model** that sets out roles and responsibilities for managing the organisation's data assets
  - Ensure effective data governance and data management is embedded throughout the agency
  - Ensure that the agency is compliant with its regulatory obligations, ethical standards, and community expectations in respect of its data practices.
- The DOC shall have the delegated authority to:
  - Spend money, within approved budget, on data management improvements and analytics projects
  - Approve **policies, standards, and a Business Glossary** to guide data management activities and ensure the agency has a **common business language**

<sup>1</sup> Bolded terms are defined in Schedule A

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### Dimensions of Data Quality

Dimension	Conformed Dimension Definition	Underlying Concepts	Non Standard Terminology for Dimension
<b>Completeness</b> VD	Completeness measures the degree of population of data values in a data set.	Record Population, Attribute Population, Truncation, Existence	Fill Rate, Coverage, Usability, Scope
<b>Accuracy</b> VD	Accuracy measures the degree to which data factually represents its associated real-world object, event, concept – or, alternatively, matches the agreed upon source(s).	Agree with Real-world, Match to Agreed Source	Consistency
<b>Consistency</b> D	Consistency measures whether or not data is equivalent across systems or location of storage.	Equivalence of Redundant or Distributed Data, Format Consistency, Logical Consistency, Temporal Consistency	Integrity, Concurrency, Coherence
<b>Validity</b> VD	Validity measures whether a value conforms to a preset standard.	Values in Specified Range, Values Conform to Business Rule, Domain of Prefixed Values, Values Conform to Data Type, Values Conform to Format	Accuracy, Integrity, Reasonableness, Compliance
<b>Timeliness</b> VD	Timeliness is a measure of time between when data is expected versus made available.	Time Expectation for Availability, Manual Float	Currency, Lag Time, Latency, Information Fresh
<b>Currency</b>	Currency measures how quickly data reflects the real-world concept that it represents.	Current with World it Models	Timeliness
<b>Integrity</b>	Integrity measures the structural or relational quality of data sets.	Referential Integrity, Uniqueness, Cardinality	Validity, Duplication
<b>Accessibility</b>	Accessibility measures how easy it is to acquire data when needed, how easy it is retained, how access is controlled, and whether facts exist as data.	Ease of Obtaining Data, Access Control, Retention	Availability, Security
<b>Precision</b>	Precision measures the number of decimal places and rounding of a data value or level of aggregation.	Precision of Data Value, Granularity	Coverage, Detail
<b>Lineage</b>	Lineage measures whether factual documentation exists about where data came from, how it was transformed, where it went.	Source Documentation, Segment Documentation, Target Documentation, End-to-End data flows	
<b>Representation</b> V	Representation measures ease of understanding data, consistency of presentation, appropriate media choice, and availability of documentation (metadata).	Easy to Read & Interpret, Presentation Language, Media Appropriate, Metadata Availability	Presentation

Key: V in Victorian Gov Data Quality Standard / VD in Victorian Gov Data Quality Standard with a different meaning / D in DAMA UK dimension

Notes:  
The original DAMA DMBOK dimensions of Data Quality were defined primarily by David Loshin. The DAMA UK white paper that is often referenced in other material was developed later.  
This table of conformed dimensions is a copyright of Dan Myers, DQMatters.com, and can be licensed under a Creative Commons Attribution 4.0 International License.

### Business Glossary examples

Intro

Business Area	Business Process	Business Object	Business Event	Business Role	Business Location	Business Time	Business Unit	Business System	Business Data	Business Metric	Business Risk	Business Opportunity
Customer	Customer Onboarding	Customer ID	Customer Registration	Customer Support	Customer Service	Customer Feedback	Customer Segments	Customer Portal	Customer Data	Customer Satisfaction	Customer Churn	Customer Retention
Finance	Financial Reporting	Financial Statement	Financial Audit	Financial Analyst	Financial Office	Financial Period	Financial Department	Financial System	Financial Data	Financial Accuracy	Financial Risk	Financial Growth
Operations	Operational Efficiency	Operational Process	Operational Improvement	Operational Manager	Operational Site	Operational Time	Operational Unit	Operational System	Operational Data	Operational Cost	Operational Risk	Operational Innovation

### Content

Example

A Social Security Number (SSN) is a unique number assigned by the US Department of Commerce for the purpose of processing and identifying individuals within the Social Security system. The use of SSNs has grown within the US Government and may now be used as a unique identifier for income and other purposes.

SSNs are a unique identifier for the government and are typically used in the private sector to identify individuals for many purposes such as credit reporting, health care, etc.

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### Data Accountability Model

These roles and responsibilities are included in most Data Accountability Models in contemporary bodies of knowledge.

General responsibilities ← → Responsibilities for specific data assets

#### Enterprise Data Architect

- Design the necessary environment to process data and metadata through the lifecycle
- Create and maintain models of applications, integrations, migrations and transfers of data and its enhancements

#### Data Quality Expert

- Work with Data Stewards to establish clear quality metrics and measurement processes
- Advise Data Stewards and Custodians about effective profiling, cleansing and standardisation processes
- Source data quality (profiling) tools and recommend techniques for cleansing and matching
- Carry out data quality audits and measure improvement
- For major quality issues with externally sourced data, work with data suppliers to address data errors at point of creation

#### Data Owner

- Understand what data is required by a business area, and approve what is held, added and removed from the data holdings of that business
- Decide how data is to be moved and changed within the business, the roles that may access it and for what purpose
- Approve high level quality, access and security rules and requirements
- Set the policy context to ensure data for the business area is managed in compliance with rules and requirements

#### Data Custodian\*

- Provide formats for operational data and ensure it is reused
- Profile and explain source system details
- Work with business staff to correct data at the source
- Provide technical expertise on data sources, targets and transformation processes

#### Data Steward

- Develop and maintain data definitions
- Support business analysts in the alignment of functional processes and data requirements
- Assist in defining metrics, matching and standardisation rules
- Track and determine the need for additional data elements on projects, and opportunities for reuse across projects and business processes

#### Data Analyst

- Track and store data definitions across projects and applications
- Track and record business definitions of metadata
- Create and maintain records in a data model
- Ensure reuse of data and metadata
- Create source to target mappings and maintain in a relevant repository/model

VICTORIAN CENTRE FOR DATA INSIGHTS

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## B. Pilot the service with a VPS agency with strong executive support

VCDI proposes a very simple, two-phase approach to launching a data governance program with minimal cost overhead or disruption to business.

<u>Phase 1: Foundational activities:</u>	<u>VCDI supporting activities: phase 1</u>
1. Hold discussions with divisions across agency to identify key data holdings, based on their value to the agency and the risks associated with them	1. Facilitate the discussions to ensure that they are targeted and address all aspects of value and risk
2. Identify appropriate Data Owners and Data Stewards for those holdings	2. Ask the right questions to identify the appropriate accountable individual
3. Establish the Data Owners Council and the Data Governance Team	3. Co-design foundational artefacts (e.g. terms of reference, business glossaries etc)

<u>Phase 2: Start governing data</u>	<u>VCDI supporting activities: phase 2</u>
1. Formalise stewardship accountabilities and establish Data Stewards' Committee	1. Provide artefacts and facilitate discussions to help Committee to function properly
2. Hone in on areas for improvement to support identified agency objectives (e.g. data quality, sharing, integration etc).	2. Advise on and test the feasibility of improvement programs, and provide support during implementation
3. Develop core policies and procedures identified by Data Governance Team	3. Input into new policies and procedures as they are developed

## C. Scale

1. Demonstrate the return on investment and effort, using the pilots as 'lighthouse' projects
2. Refine our products and service offering through the pilots
3. Advocate for other agencies (and the big departments) to run data governance programs
4. Consider policy changes at a whole-of-government level to foster better data governance practices



# British Telecommunications Group – DG Case Study

- BT, a former public entity, had data issues across the business, including:
  - No single record of customer of customer, causing problems with billing, delivery, repair and marketing
  - No view of how data was used by multiple business areas, resulting in suboptimal data capture
  - Approx. 15% of assets did not appear on the inventory system
- Improvement began in 1997 with a £20,000 data quality, starting with name and address data in Retail division
- Pilot paid for itself within 3 months through postage savings, which justified dozens more projects
- Program made enterprise-wide in 1999, coordinated by specialist team, an IM Forum and champions in each line of business
- Established reusable methodology for improvements, requiring strong businesses cases for each project with a quantifiable ROI
- Benefits included:
  - Better asset tracking, decreased inventory costs, avoidance of capital expenditure, improved asset utilization
  - Revenue recovery and creation, including correct bills for products and features
  - Better staff morale and retention rates (and higher productivity!)
  - Enablement of electronic business and increased customer satisfaction
- During a seven-year period, BT achieved a cumulative £700 million in business benefits
- Practices are now baked into BT operations, and the company is well-placed to benefit from GDPR.

See: Organizing Data Governance: Findings from the Telecommunications Industry and Consequences for Large Service Providers [file:///C:/Users/vict7c5/Downloads/Otto\\_OrganizingDataGovernance\\_2011.pdf](file:///C:/Users/vict7c5/Downloads/Otto_OrganizingDataGovernance_2011.pdf)

# Examples of quick wins from DG

## Fast issue resolution

- Staff at an **insurance company** who priced policies were neglecting to collect customer D.O.B because it had no impact on price and they were not incentivised to do so. This made integrating data to get a 'single view of customer' impossible.
- DG Council fixed problem by realigning incentives and setting clear expectations.

## Common definitions

- The Loan Services and Risk areas at a **financial institution** were using different definitions of 'delinquency date', making reporting difficult and causing much confusion.
- DG broke the deadlock and ensured the new definition was entered into a Business Glossary, which not only cleared up the confusion but freed up resources by enabling Risk to use the Loan Services reports rather than generate their own.

## Data quality efficiency gains

- A **company** with no master data was losing 27K a month due to returned mail and need to outsource address standardisation. They implemented a program to:
  - add enforcement at data collection to only allow valid addresses
  - purchase outside data on valid addresses and run standardisation on existing addresses.
- Within 3 months they recouped the cost of the program and were generating significant month-on-month savings.

## Better intelligence for operations

- A **shipping** company realised trucks were leaving not fully loaded. This was due to poor, inaccurate product-size data.
- Implemented a project to fix product-size dimensions and enabled 19 trucks to do the job of 20: a 5% increase in productivity.

Examples taken from Data Plotkin's *Data Stewardship: An Actionable guide to effective data management and data governance*

*For further case studies, or to discuss VCDI's data governance services, please contact [joshua.strong@dpc.vic.gov.au](mailto:joshua.strong@dpc.vic.gov.au)*



Victorian Government  
Solicitor's Office

# Multi-agency information sharing

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**12 March 2020**

**Rebecca Radford**  
Managing Principal Solicitor

# Agenda

Practical  
steps and  
tips for  
sharing

Information which identifies people/impacts on individuals' rights

Between two or more government agencies to achieve a legitimate objective



# 1. Know your information and authorising environment

## Multi-agency issues

Reconciling different authorising environments

Different interpretations of principles/law

Unwillingness to share

## Tips

Create the right culture

Map information flows

Streamline legal advice process

Victorian Data Sharing Act?





## 2. What's the practical solution look like?

### Multi-agency issues

Incompatibility of systems and process

Outdated systems with limited functionality

Different risk appetites

### Tips

Early information on what's possible

Get a subject matter expert on the team

Revisit legal advice and Charter assessments as the solution develops



### 3. Document your sharing with PIAs and agreements

#### Multi-agency issues

Ineffective PIAs or reconciling multiple PIAs

Difficulties in negotiating information sharing agreements

#### Tips

Be strategic with your approach to PIAs (share them and revisit them)

Ensure an ISA clear as to what each agency will do

Governance processes plugged into each agency's governance process

Allocate resource to manage



# What's in your Information Sharing Agreement?

What and why we are sharing information, and our authorising environment

What each of us will do and how? For example:

- Protections for the information including how it will be stored and maintained
- How will agencies manage data security incidents (including breaches)
- How will we make decisions/govern this arrangement

Manage the agreement



1

Know your information and your authorising environment



2

What does the practical solution look like? Still authorised?



3

Document sharing through effective PIAs and practical information sharing agreements

