

Data Exchange Framework

IT Strategy Action Plan 2017-18

Action 6: Develop a data exchange framework to ease the sharing and/or integration of data between government and third parties and within government (for example via the API Hub).

The *Victorian Government Information Technology Strategy 2016-2020* (IT strategy) aims to enable better information sharing and integration to support better decision-making, better value and better services in a safe and secure IT environment.

As part of achieving this, action 6 in the IT strategy 2017-18 action plan (year two plan) requires the development of a data exchange framework for the government. This action supports the Victorian Centre for Data Insight's (VCDI) Data Reform Strategy, action 8 from the IT strategy year one plan; the API (application programming interface) gateway, and action 9 from year two; the API platform. However it steps beyond API gateways to encompass all forms and methods of data exchange and sharing.

This data exchange framework (framework) creates a standardised whole of Victorian government (WOVG) data exchange approach regardless of data type, classification, exchange method, platform, or intended use. It identifies the key steps and components of data exchange and the overarching governance and business rules.

The framework balances the need for privacy and legislative compliance with the need for better insights (informed decisions and evidence-based policy development), performance reporting and operational efficiency. It provides an authorising environment to enable data exchange and sharing in day to day practice.

The framework supports the government's Data Reform Strategy and the IT strategy's objectives of increasing access to government data by staff and systems and managing data holistically to remove duplication and gaps.

Data exchange defined

The IT strategy defines 'data' as "...a more fundamental component of information. It forms the building blocks of information and needs to have its context formally described to be useful. For information technology purposes, data tends to describe highly structured information (such as in a database). One example is the tables of financial figures in the Budget papers."

For the purpose of this framework 'data exchange' refers to exchanging or transferring data in a secure, authorised and predefined way whether automated; real time or near real time; system to system; via secure file transfer; bulk uploads or once-off.

Objectives

The objectives of the framework are to:

- Enable, encourage and authorise data exchange to increase the value of the investment in government data and ease the sharing and/or integration of data between government (inter/intra department and agencies), third parties (managing information on behalf of government) and other jurisdictions.
- Reduce the cost and resource intensity of data exchange by creating a standardised WOVG data exchange approach (regardless of data type, data exchange method or platform or intended use) and ensure responsibilities for the data after exchange are clear and agreed prior to exchange.
- Retain data integrity by considering the quality, value and authenticity of the data being exchanged.
- Balance the need for safety and transparency in data exchange with the need for better informed decisions, evidence-based policy development, performance reporting and operational efficiency.
- Ensure data exchanges are fit-for-purpose (i.e. meet business needs) and able to be supported.

Target audience

The framework is targeted at data owners and data custodians (from within the business), data exchange requestors, data and information management practitioners and information technology specialists.

Scope of the framework

The scope of the framework is:

- exchange and transfer of structured data
- system-to-system exchange or file transfer including bulk uploads, once off, automated, real time and near-real time
- data exchange inter/intra department, with agencies, third parties (managing information on behalf of government) and other jurisdictions.



The framework should be applied to new data exchange arrangements or existing data exchange arrangements that are being re-negotiated.

Principles

Victorian government data exchange will be based on the following principles¹:

1. Transparent and collaborative accountability	<p>Parties to a data exchange will collaboratively work together to ensure a secure, authorised, predefined and transparent data exchange.</p> <p>Roles and responsibilities for all parties involved in the data exchange are clearly defined and communicated.</p> <p>Data ownership and accountability throughout the data exchange process is understood.</p>
2. Enabled exchange	<p>Data from different sources is able to be exchanged and used appropriately.</p> <p>All data requests are managed and responded to within a timely and accommodating manner.</p> <p>Departments proactively seek and provide data via data exchange arrangements.</p>
3. Authorised exchange	<p>The authority (and approval) to exchange data is understood by all parties involved.</p> <p>Data privacy, confidentiality, security and intellectual property is respected and protected during and after the exchange of data.</p> <p>Limitations to data exchange are understood, managed and communicated.</p> <p>Data exchange business requirements are understood and applied.</p> <p>Data is exchanged with assurance provided for the appropriate use of data after the exchange.</p>

¹ Based on the principles of the Administrative Data Exchange Protocol for Tasmania, Tasmanian Government, http://www.egovernment.tas.gov.au/stats_matter/adept

Data exchange framework

Overview



Figure 1 - Data exchange model

The data exchange model (figure 1) articulates the journey from managing data requests, assessing readiness and right to exchange to carrying out the exchange of data.

The framework provides a high-level overview of the data exchange process, its key components and the overarching governance and business rules. It is a living record and high-level road-map for the development of the key process components.

It is expected that over time the framework will evolve and change as its components are defined and government capability grows.



The framework will not contradict or reinvent existing policy, advice or deliverables (across WOVG). Instead it will link to and bring together the subject matter expertise into the one environment to support streamlined, safe and authorised data exchange.


The steps



Step 1 – Manage data requests, assess readiness and authority to exchange

Critical to successful data exchange or transfer is appropriately managing data requests (both requests received and requests sent), assessing whether the data is ready to be shared and whether you have the authority (the right) to share it. This is about enabling data exchange: ensuring the exchange (or transfer) happens in a secure, transparent and compliant manner and sufficiently describing the data and its quality to enable the data recipient to assess fitness for their intended purpose.

Key component	Description
Assess readiness to exchange (guideline)	<p>Outlines the parameters of readiness for data exchange including business value, associated risks, data protection, privacy impact assessments and de-identification, adequately described (metadata), data quality (data quality statements and the acknowledgement of data quality limitations) accessibility (particularly when the data resides in a legacy system) and systems (performance/load impacts and associated service levels) etc.</p> <p>Provides guidance on how to use these parameters to assess readiness, or lack of readiness, to exchange data.</p> <p> A decision tree and associated use case examples will be provided to help data owners assess readiness to exchange.</p>
Assess the right to exchange (guideline)	<p>Provides guidance on assessing whether you have the right (authority) to exchange data (authorised release) including:</p> <ul style="list-style-type: none">• legislative and administrative policy barriers - privacy, security, confidentiality, copyright, intellectual property rights• associated risk to the department, government and the Victorian public• data exchange approval or consent (depending upon the criticality or risk associated with the data, use of the data or method of exchange) <p>This guideline will also help the data owner to build the case for data exchange and assess whether the data exchange is in the best interest of the department, government or the Victorian public.</p> <p>It will also consider if the data owner has the authority to withhold the data and the steps a requestor can take to appeal the decision to withhold.</p> <p> A decision tree and associated use case examples will be provided to help data owners assess their right to exchange.</p>
Managing data requests (guideline)	<p>Guidance for making data requests and managing data requests received including:</p> <ul style="list-style-type: none">• overarching governance including accountability, data ownership, roles and responsibilities• what data is being requested and why• what to do when a request is received (review, assess and respond)• what to do when requesting data• the authorising environment under which the data can be exchanged (see <i>Assess readiness to exchange</i> and <i>Assess the right to exchange</i>)• whether the request is once off or on-going, and the anticipated availability, volume and frequency of the request• understanding the business processes, scenarios or use cases for which the data

Key component	Description
	<p>will be exchanged</p> <ul style="list-style-type: none"> • how to use the data request template
	 A decision tree and associated use case examples will be provided to help data owners to manage data requests.



Step 2 – Apply business rules

Identification of business rules will help to ensure reliable, consistent and sustainable data exchange and decision making. Knowing what you can and can't exchange, where accountability starts and finishes and how to protect the government as a result of the exchange etc. are all critical to successful data exchange outcomes.

Key component	Description
Data exchange standard/s (business rules)	<p>A series of standards (based on industry and open standards) identifying the business rules for data exchange:</p> <ul style="list-style-type: none"> • common schemas, patterns and formats (metadata, common languages, comma separated or tab delimited etc.) • data dictionaries for common data types and schemas • managing and exchanging common data types • common data exchange methods including secure file transfer, API gateway (to be covered under the API initiative), system to system, system to location, messaging services and data exchange services. Key consideration will be appropriate security based on the classification of the data being transferred and intended use • consideration of what not to use when exchanging data i.e. email, CD's, unsecure cloud services etc.
Establishing a data exchange arrangement standard (business rules)	<p>Describes the minimum requirements when establishing a data exchange arrangement including:</p> <ul style="list-style-type: none"> • what can be exchange/what can't be exchanged • legislative and administrative obligations • data ownership and sovereignty; at which point does ownership transfer or not transfer? • roles and responsibilities i.e. ownership and accountability • formalising the arrangement including how to use the data exchange agreement or statement of intent including how to complete the associated data schedule • when to exchange without an agreement or statement • licensing of data exchange arrangements • cross-jurisdictional, inter and intra department, agencies and third party data exchange • managing data exchange as a record (with a link to the Public Record Office Victoria (PROV)) • managing risk and compliance including identifiable and sensitive data (with linkages to the Office of the Victorian Information Commissioner (OVIC) and VCDI) • carrying out a privacy impact assessment of the data (both of the data to be exchanged and how it is intended to be used)

Key component	Description
	<ul style="list-style-type: none"> lifecycle and change management i.e. establishing a refresh cycle for frequently changing data or data that has a time limit (e.g. annual datasets that expire on a certain data)



Step 3 – Identity mechanisms and tools

Data exchange and transfer is an emerging practice and need within government, supported by a growing number of services and functions and underpinned by compliance with legislative regulations and administrative policies. Knowing what's available, who to talk to, and which tools and templates to use will support streamlined, safe and authorised data exchange.

Key component	Description
Data services and infrastructure	Descriptions of and links to existing data services, data exchange services, platforms and infrastructure within and external to government. For example, the VicRoads' Data Exchange Platform (under development), other API gateways, the VCDI Data Hub (under development), Victorian Spatial Data Library, health.vic, Aurin Portal etc. Identification of future technical needs to facilitate data exchange.
Data sources and schemas	<p>Descriptions of and links to existing data exchange schemas, design patterns and methods within the Victorian Government and externally.</p> <p>Descriptions of and links to existing data sources, providers, registers/catalogues and repositories including Data.vic.gov.au, internal information asset register, reference data, master data i.e. 'person', 'place' and 'economy' datasets² etc.</p>
Data experts	Links to expert groups within government who have responsibility for data exchange including the Victorian Centre for Data Insights, Health Data Agency and Family Safety etc.
Compliance	Descriptions of and links to legislative and administrative policies that impact data exchange including the <i>Victorian Privacy and Data Protection Act 2014</i> , <i>Victorian Data Sharing Act 2017</i> and Victorian Government Intellectual Property Policy etc.
Data exchange risk assessment model	Aligned with the Victorian Government Risk Management Framework and the Victorian Protective Data Security Framework the Data Exchange Risk Assessment Model will help assess the risk and apply appropriate controls to data exchange initiatives. This model will help data owners to assess if the data exchange is in the best interest of the government or of the Victorian people.
Data request (template)	A template for data exchange requests including how the data requestor intends to use the data.
Data exchange checklist (template)	A checklist that helps the data owner to assess the authority and justification for a data exchange arrangement. The emphasis of this checklist is not on preventing data exchange but rather on exchanging data in a safe (secure) and transparent manner.
Data exchange agreement (template)	A standardised agreement/contract template for data exchange with third parties including RASCI ³ , service level agreement, change management and data schedule (a detailed description of the data).
Data exchange statement of intent (template)	A standardised data exchange statement of intent (or memorandum of understanding) template for inter and intra department data exchange including RASCI, service level agreement and data schedule.

² The Victorian Government's Data Reform Strategy

³ RASCI Responsibility Matrix, <https://managementmania.com/en/rasci-responsibility-matrix>

Key component	Description
Data exchange technical specification (template)	A template for documenting the technical specifications of a data exchange.



Step 4 – Exchange data

Each data exchange will differ in its characteristics but be similar in the process of designing, testing and transitioning to business-as-usual (BAU). The following will provide guidance on each stage of the process.

Key component	Description
Designing a data exchange (guideline)	<p>Guidance on the process of designing and carrying out a data exchange including:</p> <ul style="list-style-type: none"> • data exchange key concepts and terminology • the different types of data exchange methods e.g. system-to-system, SFTP, bulk upload versus single instances, real time versus near real time, large transactions, bulk uploads, and one-off or scheduled etc. • how to overcome the barriers to data exchange • the use of process flow diagrams, data architecture, modelling and mapping to support data exchange • mapping interdependencies so there is an understanding of associated complexities • data quality in the context of data exchange and links to the <i>Data Quality Standard</i> and associated toolset • common and recurring schemas, patterns and methods for exchanging data including industry standards • technology and data storage considerations • usage considerations including data linkages, integration and transformation • contracts and service level agreement (SLA) considerations
Test a data exchange (guideline)	<p>Guidance on how to carry out end-to-end testing of a data exchange including:</p> <ul style="list-style-type: none"> • types of testing and when to use them • common problems identified during data exchange testing • identifying, documenting and managing issues during testing • data exchange validation and assessing the quality of the data received • data handling and disposal during and after testing i.e. data security and preventing privacy breaches
Transition to BAU (guideline)	<p>Minimum steps for handing over the data exchange arrangement to a BAU function including exception handling, contract and SLA management, security, roles and responsibilities, asset management planning and maintaining data integrity, and ongoing monitoring and reporting, re-using exchanges, versioning and retiring.</p>

Scope, glossary and related documents

Scope

The following departments and agencies are formally in scope:

- Department of Economic Development, Jobs, Transport and Resources
- Department of Education and Training
- Department of Environment, Land, Water and Planning
- Department of Health and Human Services
- Department of Justice and Regulation
- Department of Premier and Cabinet
- Department of Treasury and Finance
- Victoria Police

These are referred to collectively as 'departments' in this document.

While not required, the framework may be adopted by agencies and partner organisations, if desired.

Glossary

The glossary of terms and abbreviations used in this document are defined in the [Information Management Glossary](#).

Related documents, tools and references

- [Victorian Government IT Strategy 2016-2020](#) (Department of Premier and Cabinet (DPC))
- [WoVG Information Management Framework](#) (DPC)
- Data Reform Strategy (DPC)
- [Guidelines for Sharing Personal Information](#) (OVIC)
- [Victorian Protective Data Security Framework](#) (OVIC)

Further information

For further information regarding this framework, please contact Enterprise Solutions, Department of Premier and Cabinet, at: enterprisesolutions@dpc.vic.gov.au

Document control

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Approval

This document was approved by the Chief Information Officers Leadership Group under the authority of the Victorian Secretaries Board on 07/05/2018 and applies from the date of issue.

Version history

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0.2	20/03/2018	Feedback from working group incorporated
0.3	22/03/2018	Additional feedback from working group incorporated
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