Queensland Government Enterprise Architecture

Information architecture

ICT Action Plan update

Final

March 2014

v1.0.0

OFFICIAL-PUBLIC

Document details

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | | | | | |
| 1. Security classification | 1. OFFICIAL-PUBLIC | | | | | |
| 1. Date of review of security classification | 1. March 2014 | | | | | |
| 1. Authority | 1. Queensland Government Chief Information Officer | | | | | |
| 1. Author | 1. Queensland Government Chief Information Office | | | | | |
| 1. Documentation status |  | 1. Working draft |  | 1. Consultation release | 1. 🗹 | 1. Final version |

Contact for enquiries and proposed changes

All enquiries regarding this document should be directed in the first instance to:

Queensland Government Chief Information Office   
[qgcio@qgcio.qld.gov.au](mailto:qgcio@qgcio.qld.gov.au)

Acknowledgements

This version of the *Information architecture* was developed and updated by Queensland Government Chief Information Office.

Feedback was also received from a number of agencies, which was greatly appreciated.

Copyright

*Information architecture*

Copyright © The State of Queensland (Department of Science, Information Technology, Innovation and the Arts) 2014

Licence

[Creative Commons Licence](http://creativecommons.org/licenses/by/2.5/au/) to be added to document prior to approval.

Information security

This document has been security classified using the Queensland Government Information Security Classification Framework (QGISCF) as OFFICIAL-PUBLIC and will be managed according to the requirements of the QGISCF.

Contents

[1 Introduction 5](#_Toc384304499)

[1.1 Overview 5](#_Toc384304500)

[1.2 Using this document 5](#_Toc384304501)

[1.3 Current state 7](#_Toc384304502)

[1.4 The appetite for change 7](#_Toc384304503)

[1.5 Information architecture update considerations 9](#_Toc384304504)

[2 Updating information architecture 10](#_Toc384304505)

[2.1 Guiding influences 10](#_Toc384304506)

[2.2 Government architecture context – Framework and environment 12](#_Toc384304507)

[2.3 Government IA context – ‘used for’ and ‘used by’ 12](#_Toc384304508)

[2.4 Choosing the information architecture updates 14](#_Toc384304509)

[2.5 Supporting technical platform delivery drivers 16](#_Toc384304510)

[2.6 Developing an IA lifecycle model 18](#_Toc384304511)

[2.7 Extending from the information management strategic framework 19](#_Toc384304512)

[3 QGIA: Vision and strategy 20](#_Toc384304513)

[3.1 Approach 20](#_Toc384304514)

[3.2 Vision 20](#_Toc384304515)

[3.3 Goals 22](#_Toc384304516)

[3.4 Principles 24](#_Toc384304517)

[3.5 Strategies 26](#_Toc384304518)

[4 Information architecture update 27](#_Toc384304519)

[4.1 Introduction 27](#_Toc384304520)

[4.2 QGIA definition approach 29](#_Toc384304521)

[4.3 Information artefacts 31](#_Toc384304522)

[4.4 Information architecture stakeholders and contributors 32](#_Toc384304523)

[4.5 Information architecture workflow 33](#_Toc384304524)

[4.6 Workflow phases 34](#_Toc384304525)

[5 Information architecture artefacts 34](#_Toc384304526)

[5.1 Overview 34](#_Toc384304527)

[5.2 Business scenarios 35](#_Toc384304528)

[5.3 Business use cases 35](#_Toc384304529)

[5.4 Information classifications 35](#_Toc384304530)

[5.5 Information sources 35](#_Toc384304531)

[5.6 Business process models 36](#_Toc384304532)

[5.7 Logical information specifications 36](#_Toc384304533)

[5.8 Logical service specifications 36](#_Toc384304534)

[5.9 Technical information specifications 36](#_Toc384304535)

[6 Information management lifecycle methodology 37](#_Toc384304536)

[6.1 Overview 37](#_Toc384304537)

[6.2 Trigger 38](#_Toc384304538)

[6.3 Plan 39](#_Toc384304539)

[6.4 Create/collect 39](#_Toc384304540)

[6.5 Organise/store 39](#_Toc384304541)

[6.6 Access 40](#_Toc384304542)

[6.7 Use 40](#_Toc384304543)

[6.8 Maintain 40](#_Toc384304544)

[6.9 Dispose 41](#_Toc384304545)

[7 Information sharing pattern library 41](#_Toc384304546)

[7.1 Introduction 41](#_Toc384304547)

[7.2 Service Directory 41](#_Toc384304548)

[7.3 Point to point file sharing 42](#_Toc384304549)

[7.4 Sharing repository 43](#_Toc384304550)

[7.5 Store and forward messaging 43](#_Toc384304551)

[7.6 Information sharing broker 43](#_Toc384304552)

[7.7 cIDM usage 43](#_Toc384304553)

[7.8 Cloud storage 43](#_Toc384304554)

[7.9 CRM 44](#_Toc384304555)

[7.10 Sensitive information sharing 44](#_Toc384304556)

[8 Information sharing standards 44](#_Toc384304557)

[8.1 Introduction 44](#_Toc384304558)

[8.2 Interchange of client information – AS4590 44](#_Toc384304559)

[8.3 Addressing – GNAF 45](#_Toc384304560)

[8.4 Service directory – USDL 45](#_Toc384304561)

[8.5 Open data 45](#_Toc384304562)

[9 Information architecture next steps 46](#_Toc384304563)

[Appendix A Current IA artefacts 47](#_Toc384304564)

[Appendix B IA artefact detail 49](#_Toc384304565)

# Introduction

## Overview

The business of government is reliant on the creation, management and use of information. With government services being delivered across a broad portfolio of service domains, the task of managing the information can become large and complex. Using an appropriate architecture approach to support the management of information is an important area within government agencies to ensure that service delivery is efficient and thorough.

To bring consistency and best practice to the management of information across government, the Queensland Government Chief Information Office (QGCIO) has ownership of the reference framework for management of government information. This framework is robust and comprehensive, and is generalised to permit use across the whole of government in different domains. The framework has been in active use for a number of years and is an important foundation component in the strategic design and operation of information systems across the state.

The recent audit of ICT systems in Queensland Government was a wide-ranging assessment of the ‘state of the state’ in ICT terms. A detailed action plan is now being enacted and a key element in this plan is to increase sharing of information between agencies, supported by an enhanced information architecture that can support innovation, agility and cost-effective solution deployment.

This document describes an updated and contemporary approach for information architecture in Queensland Government, leveraging the existing elements from the information architecture and enhancing and extending it to suit the needs of a modern, connected and efficient government ICT landscape.

The revised architecture delivers Action Item 3.02 of the Queensland Government ICT Action Plan 2013-17[[1]](#footnote-2), and also interlocks with Action Item 3.05.

## Using this document

The use of the acronym ‘QGIA’ in this document should not be confused with the use of the same term to describe the Government Information Architecture (GIA) that was published eight years ago.

The use of the ‘QGIA’ in this current context refers to those architectural activities within the information layer of the Queensland Government Enterprise Architecture (QGEA).

The intention of this document is to provide context for the journey being undertaken, as well as the revised architecture structure and indicative endpoints for information sharing patterns.

It is expected there will be a wide range of audiences for the updated information architecture. This section provides a brief guide on how the document is structured, allowing different readers to choose the right place to start.

* **Section 1** gives an informal description of the current state of the information architecture, noting its role and usage as well as the basis for change. It also describes some of the key traits that an updated information architecture should have to support the goals of information sharing.
* **Section 2** provides the process by which the information architecture has been updated, noting links to the broader Queensland Government Enterprise Architecture (QGEA) framework. This section also provides a high level view of the four major areas where changes have been made, and notes how the new elements link to the existing framework. Coverage is also given for the technical platform drivers from government that the information architecture is intended to support, and description of the information management lifecycle.
* **Section 3** uses the context from section 1 and the updated approach from section 2 and describes an information architecture approach, vision, goals, principles and strategies. The content in this section was guided by stakeholder input, and the raw input received is also captured to allow for further ongoing refinement.
* **Section 4** presents the hybrid architecture framework used to hold the updated information architecture. This section provides the specific details on what the architecture looks like, how it works, the elements involved and the workflows to use in a project lifecycle.
* **Section 5** provides a high level description of the key documents defined in the architecture. Each document is defined and described, guiding users on how to structure such documents for implementation projects.
* **Section 6** describes the methodology for information lifecycle management. The approach is highly compatible with the guidance in Information Standard 44: Information asset custodianship (IS44), extended and refined to align with the business-led information sharing focus for the architecture.
* **Section 7** is the information sharing pattern library. This initial collection of patterns provides guidance for users on how information sharing can be implemented. The pattern library is likely to become a standalone repository as implementation projects complete and contribute experiences back to the architecture project; in this initial instance of the library, the patterns provide directions for further work with contribution invited.
* **Section 8** provides guidance on specific information standards that are nominated for inclusion into the architecture. The suite of standards is currently a core set that is expected to grow, and stakeholder input can help to refine the set selected.
* **Section 9** summarises the steps taken to this point in the update of the information architecture and proposes a roadmap for further development.
* **Appendix A** lists the artefacts in the current IA for reference purposes
* **Appendix B** provides more detailed versions of the documents described in section 5.

Section 4 provides a ‘quick start’ view of the information architecture, for the information architecture workflows and section 7 shows specific usage patterns that may be applicable in local projects.

Ongoing input on the revised information architecture can be supplied to qgcio@qgcio.qld.gov.au.

## Current state

The Queensland Government Information Architecture (QGIA) reflects best practice and can support information architects within departments through a range of methodologies, whitepapers, frameworks and similar artefacts.

In the place of consistent government-wide information architecture (IA) being used, common practice has been for agencies to develop and use their own information architecture (or lightweight alternative) for managing information within their environments. This is particularly the case where information is kept for local use, and where the benefit from a whole-of-government IA would not be realised.

This approach has created information silos, where data is stored in local repositories and is neither interoperable nor easily shareable with other agencies. What may have commenced as a small project built with local practices can incrementally evolve into an important agency system that uses custom methods for information sharing that do not permit easy access or sharing. Such systems are common across government and represent a legacy burden that is difficult to manage.

Where information sharing does occur between agencies, it can be done on a point-to-point basis with carefully crafted data exchange agreements, through simple web service interfaces or through information sharing systems that are local to a particular environment. Agencies such as Queensland Police, Queensland Health, Department of Education and Training and the Department of Transport and Main Roads generate and manage massive volumes of information that are frequently being used through local information management practices, it can be difficult to meet service delivery expectations cost-effectively.

## The appetite for change

The ICT renewal agenda sets out a target environment that uses consistent and widely adopted information sharing plans. An important component in delivering this goal is revitalised information architecture, and the present project to revisit the current architecture is taking the first few steps toward updates that may be needed.

However, simply updating the end product of the architecture will not deliver wider adoption of its products or better information interchange. To deliver these goals a much broader approach should be taken.

The information architecture should be able to support the outcomes of information sharing, but be directed by the needs of its users. This revised approach to information architecture favours the delivery of information sharing capabilities for agencies across government using tools that can be applied rapidly.

To develop a clear view for the QGIA, a series of discussions was undertaken in QGCIO and workshops were conducted with architects and stakeholders from across the sector. From these discussions a forward direction has been developed, and this is explained later in this document.

To provide context for this introduction, some of the key themes influencing the revised approach are below.

|  |
| --- |
| The updated QGIA should have these **characteristics**:   * simple to use (pick up and understand in a short time) * fast to deliver results (pre-built patterns for common information, reference sites, resources) * usable in systems from simple to complex (lightweight enough for lots of small projects, deep enough for complex projects) * linked to existing QGIA artefacts in a clear and logical manner * most importantly: show clear benefit from use (value for architects, managers, projects). |

|  |
| --- |
| The updated QGIA should **enable these capabilities** for information sharing:   * more frequent standardised information sharing (reducing bespoke point to point connections) * more consistent information sharing (using standard information formats, interchange mechanisms and interfaces) * better governance over information sharing (interchange agreements, information custodianship, etc.) * supportive of open data access for government data sets * compatible with infrastructure as a service (where underlying applications and technology may be abstracted) * better information access and sharing for government service suppliers, working in a contestable future environment * more cost effective development and delivery of solutions using standardised information elements and access methods. |

|  |
| --- |
| **Consultation Feedback Points:**   1. Are these characteristics from information architecture suitable for the needs of government? Are there others that should be included? 2. Do these capabilities capture the key areas that a revised QGIA should deliver? |

## Information architecture update considerations

In moving from the current information architecture elements to an updated suite, some key considerations have been assessed. The table below shows a summarised view of guidance from future users of the architecture, derived from consultation across Queensland Government.

|  |  |
| --- | --- |
| **Consideration** | **Guiding position** |
| **Who are the primary users of the QGIA?**  Will it be agency architects, or vendors? Or solution designers within departments? | The primary **customers** for the updated QGIA will be business users seeking delivery of information sharing capabilities. The primary **users** of an updated QGIA are expected to be architects within agencies and architects working with industry partners. The accessible business focus of the architecture will allow audiences from business to technical to find value in the IA. |
| **What will be the main reason for using QGIA?**  Will it be necessary for compliance activities in sharing?  Will it be architecture best practice?  Will it provide tools to support the Open Data initiatives?  Will it be necessary to adopt QGIA for high value projects, where QGCIO endorsement is needed? | The main reason to use the updated QGIA will be that it provides fast and proven guidance for the information sharing approaches that allow the goals and outcomes for government to be met.  The QGIA will also describe the preferred approach to managing information in information sharing projects, where a collaborative and aligned approach is needed. |
| **How will the QGIA be used?**  Will architects use the framework as better practice guidance, provide influence for local build activities?  Will it be a reference architecture that is used complete and intact?  Will users pick some elements (e.g. data dictionary, interface definitions), but use local implementations for others?  Will it be used for maintenance of legacy platforms, or only new systems? | Although the existing QGIA already has the capacity to meet all of the uses mentioned, the focus for the revised architecture will be to offer targeted guidance for information sharing between agencies, whether for a legacy project, existing project or new initiative.  In the case of partnering with a non-government supplier for service delivery, the QGIA can provide a common design framework for information sharing that may be required. |
| What are the measurable outcomes from use of the QGIA?  Will the outcomes be in areas such as faster implementation using standard reference models and patterns, better levels of interoperability with other services, or more demonstrable information robustness?  Will it provide greater levels of assurance for information sharing projects that successful connections can be established and maintained? | The major outcomes from the use of the updated QGIA will be to support the more rapid establishment and delivery of projects sharing information between agencies or with industry partners.  The QGIA will also provide solid guidance for the governance of information sharing and assurance around the usage information in agencies when acting as a supplier or consumer of information. |

|  |
| --- |
| **Consultation Feedback Points:**   1. Do these characteristics from information architecture reflect the right goals for QGIA users? |

# Updating information architecture

## Guiding influences

The existing core of the QGIA is solid content, but is noted by stakeholders as being hard to use in an agency business context. For business users seeking general guidance on managing information architecture, the QGIA has not been easy to navigate or absorb – and this has been a factor in limiting its use. If a business user can’t easily see how the tools in the IA can deliver the agency outcome, a previous approach or local methodology is likely to be selected. The revised QGIA should be **relevant to business needs**.

Although the architecture structure and approach is comprehensive, there is limited support in the framework showing how the artefacts can be used to address specific local agency information management domains in government. Consequently, there has been a tendency to develop internal approaches that may (or may not) be based on the QGIA, and to share information structured with local standards and using informal channels rather than through standardised structures and approaches.

The challenge for an updated IA is then to make the existing architecture **more easily and more widely adopted**. For project teams working to address a specific business problem within an agency, the emphasis for information management is for a tactical approach that can be easily implemented. To support this, the revised IA should then be **more accessible** for business users, **easier to use** for implementers and provide **specific guidance**. This means that there should be context-aware tools to let agencies pick up and use the IA in their own environments, with specific linkages back to whole-of-government initiatives such as identity management, cloud and customer relationship management (CRM).

It is acknowledged that the QGIA should not attempt to be the ‘silver bullet’ to address all information architecture needs across government. In some respects, the current portfolio of tools has such broad applicability that it can be hard to choose when it is best to apply them. For the updated QGIA, it is proposed to lead its adoption through positioning as the enabler for addressing specific government strategy directions.

For the initial revision of QGIA, it is proposed use **information interchange** as the major focus, with secondary support from **information interoperability**. In other words, target the delivery of the information architecture toward its major use channel – project initiated to drive the sharing of information between agencies. This repositions the IA as an enabler for business outcomes, and not a goal in its own right. A central factor in making this change effective will be in ensuring that the tools in the QGIA provide the fastest, easiest, most cost effective and most reliable path to delivering information sharing across government.

|  |  |  |  |
| --- | --- | --- | --- |
| **From Current State…** | **The Challenge** | **Direction for change** | **…To Future State** |
| **Architecturally robust**  **Highly detailed**  **Extensive coverage** | Can be difficult to navigate and use, especially for business users | Drive IA from business needs, not just architectural purity | IA is relevant to business needs, provides guidance for outcomes |
| **Generalised applicability**  **Not linked to specific initiatives** | Requires start-up work to build context for application | Link IA to major government themes and systems, bring closer to implementation projects | IA has targeted solution material for major information sharing domains |
| **Not positioned as specific enough for solution issues** | Allows local models to be used, information silos to continue | Position IA as enabler for information sharing and interoperability | Queensland Government initiatives for information sharing can be rapidly delivered using tools from IA |

|  |
| --- |
| **Consultation Feedback Points:**  4. This approach moves the emphasis QGIA away from theory and guidance and toward implementation. Will this change in emphasis provide the most useful tools for government architects working on information sharing projects |

## 

## Government architecture context – Framework and environment

In updating the Queensland Government Information Architecture, it is useful to locate the changes against the context in two other key areas: the QGEA and the technical implementation platforms that may exist as solution pathways for implementation projects.

There is a logical flow to the usage of these elements, shown in the figure below.



Upstream from the information architecture is the broader Queensland Government Enterprise Architecture (QGEA). This much broader framework covers a whole-of-government approach to architecture and is based around the standard four layers model. The information classification components of the QGEA are still core to the information architecture and the revised parts of the IA can all be located into the framework.

The second area to be considered is the implementation environment across government. Queensland Government has emphasis on leveraging whole-of-government ICT services where possible, coupled with the policy directions of contestability and infrastructure-as-a-service. These elements meet to create an environment where some major pillars for delivery of a system may be either common services, delivered by an outsourced provider – or both.

These themes draw the emphasis in planning towards the information layer in a service stack. This layer becomes a key area for planning convergence across government, and it is important that the tools and approach are able to work in the broader policy environment and direct the implementation environment.

|  |
| --- |
| **Consultation Feedback Points:**  5. Repositioning the QGIA as a tool to assist in planning for information sharing re-focuses the emphasis from the current comprehensive and robust model to a simpler and more accessible suite of elements. Are there any critical elements from the current IA that might be missing in this revised approach? |

## Government IA context – ‘used for’ and ‘used by’

With the mindset of being outcome-driven and pragmatic, three major usage models for the updated QGIA have been identified, as shown below.



* **Government agencies** – can use the QGIA for information sharing within government. A subset of the architecture may be selected, or a complete implementation may be used. If a project is seeking to use information from another service that has already used the QGIA for its implementation, the ‘toolkit’ of architecture artefacts may be pre-selected and rapidly usable.
* **Non-government organisation (NGO)**/**delivery partner** – with the increased emphasis on government service delivery through technology partnerships, or via NGOs that may offer capacity and efficiency, use of the QGIA may increasingly be through organisations that are outside of government. This emphasis the need for streamlined products and an approach that can be easily integrated into non-government environments.
* **Citizen service access** – the open data initiatives and the move to ‘digital first’ across government is increasing the number of online interactions that citizens will have with government. Programs such as One-Stop-Shop are now linking many services together and creating information flows that can greatly improve service delivery for citizens. Suitable models for information architecture, information management and information sharing are key elements in delivering these initiatives.

Information sharing, information management and information architecture are part of a broad range in government service delivery. Although this updated information architecture blends the work areas, a logical taxonomy is still maintained, as shown below.







|  |
| --- |
| **Consultation Feedback Points:**   * 6. This set of customers and drivers was derived from the consultation meetings, and fit well with the current emphasis from government. Are there any other major groups or drivers that should be considered for inclusion? |

## Choosing the information architecture updates

Information architecture provides approaches, models and a methodology for designing and managing information assets so that they are directly linked to business drivers and can manage business concerns. Information architecture can be characterised across four major areas:

* **business understanding** – that supports the description of the organisation, stakeholders, and their concerns and motivations as well as capturing the business processes and functions performed
* **information modeling** – consisting of information objects (‘entities’), metadata describing those objects, taxonomies for classification of objects, and ontologies for relating information objects
* **methodology** – for extracting, analyzing, and capturing the characteristics of business and information objects
* **tools** – to capture the descriptions of business objects, data objects, metadata, taxonomies and ontologies; tools that also support enterprise architecture are preferable, facilitating the alignment of business, information, application, and technology architectures into a holistic enterprise architecture.

The tools area is noted as out of scope for a whole-of-government architecture; there is limited value in attempting to promote the adoption of tools at this stage. Rather, the emphasis is on aligning and better coordinating efforts on the business understanding, modelling capabilities and suitable methodology.

The current QGIA has a very broad range of robust architectural guidance, and an early position taken in the refresh work was to not comprehensively rework this large body of material. Rather, the new content to be added and changes to be made are led by the core goals described from the consultation meetings, the IA:

* is relevant to business needs and provides guidance for outcomes
* has targeted solution material for major information sharing domains
* offers tools that will support Queensland Government initiatives for information sharing.

The updated approach to handling information architecture activities within Queensland government should interlock with the existing QGEA[[2]](#footnote-3) to ensure that the architecture approach remains cohesive and logical. To this end, four areas have been the focus of attention in the refresh of the QGIA, and are shown in the table below.

| **Information architecture refresh component** | **Links to** | **QGEA element connection** |
| --- | --- | --- |
| Updated principles and strategies | Complements | QGEA principles and strategies |
| Revised information architecture | Interlocks with | QGEA Information Classification Framework |
| Information management lifecycle | Comes under | QGEA Methodologies[[3]](#footnote-4) |
| Info architecture patterns and models | Comes under | QGEA Other Tools |

The figure below shows how these elements are structured.



The figure on page 15 shows the abstract model for the QGEA and where these new IA elements will fit.



|  |
| --- |
| **Consultation Feedback Points:**  7. This tranche of changes is proposed as an initial step, with ongoing updates envisaged as more projects adopt and use the information architecture. Are there are any key areas that should be considered as ‘fast followers’ for future enhancements? |

## Supporting technical platform delivery drivers

Downstream from the information architecture are the suite of common technical delivery platforms that government can leverage for operations. There are seven delivery drivers that have been informally identified as targets for projects that might leverage the information architecture, and it is anticipated that further drivers may be identified during the consultation and feedback process.



* **Client identity management (cIDM)** – whole-of-government customer identity management and authentication solution. Projects or services seeking to authenticate citizens for access to government services are now able to leverage the cIDM technical platform
* **Geographic information systems (GIS)/spatial data systems** – a common approach for the interchange of GIS and spatial information is a key area for support in government projects. This domain is expected to be a core area where government should be able to interchange information effectively.
* **CRM** – the customer relationship management area is a core part of many government projects. Although there are presently a wide variety of CRM platforms in use, moving towards a preferred approach for managing the information to be stored and managed using CRM will allow a more consistent platform to be used in delivery.
* **Security/access control/audit** – one of the prime goals for management of government information is to maintain the appropriate levels of security and access. Although the delivery platform has to be secure, the emphasis in the information architecture is to leverage standards such as IS18 (and any successors) to ensure that the information management specifications will be fit for purpose.
* **Open Data + API Access** – supporting the requirements for Open Data is now a core principle in government, and there is significant ongoing work needed to manage and maintain the information available. A consistent approach for Open Data can help to streamline this ongoing management work. Coupled to the data sets is a growing appetite for programmatic access to services through API calls. Although this domain is still early in its development, guidance from the QGIA can harmonise and lead the approach being used.
* **Cloud storage** – although this is a delivery-focused choice, there are principles of service abstraction and loose coupling between systems that should be supported through the information architecture. The IA can provide value through usage patterns that allow for cloud hosting of the implemented solution.

**Enterprise services bus (ESB) –** this technology platform can allow information integration across multiple organisations. An ESB may become a preferred method for sharing information across government if a suitable solution can be established. Designing the information model and approach for use of an ESB can be supported through the information architecture.

|  |
| --- |
| **Consultation Feedback Points:**  8. These platform drivers are intended as repeated and logical downstream delivery targets. Some are already being deployed, while others are still in development. Some elements such as big data and data analytics could also be considered in this space. Are there any other platforms that should be considered for inclusion in this area? |

## Developing an IA lifecycle model

The content in the current information architecture is very detailed, and covers information management and architecture in fine-grained detail. However, it does not presently bundle the content and approach with a methodology for use. For experienced practitioners who want to choose particular elements of the IA and use locally, the current structure is workable. For agency users seeking additional guidance - perhaps as a ‘curated journey’ through the IA – there is only limited support in place.

The principle change to the IA from this refresh is hence to wrap a usage framework and methodology around the information architecture. The methodology can provide guidance for short journeys to address point problems, or longer paths to connect a number of areas as needed. The guidance for particular usage scenarios will initially be contained in case studies to be undertaken in conjunction with the development of the updated architecture, and the scenarios can be generalised into a library of architecture usage patterns as more elements are added.

It is proposed to centre the methodology on an information lifecycle approach, and defining outcomes based on the broader goals of information sharing. The proposed lifecycle model is shown below.



This lifecycle is closely aligned to the existing stages contained in IS44. The key enhancements are that this lifecycle also links to specific elements in the QGIA, guiding usage of other artefacts through simple process models.

|  |
| --- |
| **Consultation Feedback Points:**  9. IS44 is aligned with other government frameworks such as the Australia Government Information Interoperability Framework. Are there other frameworks that might influence the lifecycle model used for the revised QGIA? |

## Extending from the information management strategic framework

The new content proposed for the QGIA extends the current Queensland Government Information Management Strategic Framework as shown below[[4]](#footnote-5).



# QGIA: Vision and strategy

## Approach

A significant input to the refresh of the QGIA was broad-ranging stakeholder engagement. This was primarily gathered in a group workshop conducted in February 2014, and anecdotal feedback was also gathered from users of the current architecture, and also from within QGCIO.

The sense from the consultation was that the present environment in government not only encouraged innovation and change, but required it to meet the expectations around delivery. The rapid pace of reform driven from the ICT Action Plan is touching many areas of government service delivery, and the enabling the successful delivery of these actions is a core role for revised information architecture.

The key message developed for the architecture refresh was ‘a business-led view of information sharing’, with less of a purist architectural approach and more of the pragmatic delivery feel. In support of this approach, the consultation with stakeholders across government on information architecture was led by the business outcomes that should be met. To provide a structure for these inputs, a strategic view of the information architecture was used.

The stack below shows the elements developed.

|  |  |
| --- | --- |
|  | The **vision** section of the strategy describes the future environment enabled by the IA.  The **goals** section describes specific outcomes to be delivered in support of the vision.  The **principles** sections outlines key lines of thinking that help to guide how the IA is designed and how the goals can be implemented.  The **strategies** section covers the specifics of what is needed to deliver the environment in the vision. These strategies concentrates on ‘what’ that capabilities need to be, and do not detail the ‘how’ on building the capabilities needed. |

|  |
| --- |
| **Consultation Feedback Points:**  10. This simpler view of the QGIA approach is intended to make the framework more accessible for business users. For stakeholders and contributors, will this presentation be effective for its intended audience? |

## Vision

The **vision** for the future capabilities enabled by the QGIA is:

|  |
| --- |
| * Making it easy and reliable for agencies and partners to share, manage and use trusted government information. * Improving government service delivery to the community by ensuring that the right information can be available to the right person, at the right time, in the right format |

|  |
| --- |
| **Consultation Feedback Points:**  These two points summarise a large number of inputs received during consultation. These inputs are shown below. Are there any other points from the consultation that should become part of the high level vision for the QGIA?   1. The points listed below are the raw consultation points, provided here for guidance during the review process. 2. Government information – find it, use it, trust it. 3. Unlock stored potential to achieve efficient management of Queensland Government information 4. Entities (agencies) are willing to subscribe to information sharing because it is easy and trustworthy to share 5. Minimised technical barriers to information sharing 6. Visibility of information – improved interoperability 7. Industry standards and protocols to share data 8. Fit for purpose and fit for use 9. The government knows me as a single customer – ‘tell us once’ 10. Proactive profiling and analytics as a result of information sharing 11. Unlock silos to discover the value of information to share 12. Information sharing is ‘easy’ to subscribe to and able to cope with government complexity 13. Discover/realise the value/impact of shared government information on delivering seamless services to the community 14. Enables appropriate access to timely, reliable, trusted and secure information – regardless of organisation or facility, respecting of privacy and rights of individual 15. The business of government is aware of (and understand) the value, and support information sharing 16. Full potential – additional value is realised via information sharing (1+1=3) 17. Fit for purpose and accessible information sharing 18. Easy to: discover, assess, access, use 19. Make Queensland Government information discoverable to all – info sets direct to proactive ID sharing opportunities 20. Right info, right time, right cost, right people. Seamless service delivery 21. Citizens engage government to shape new services or enhance existing ones 22. To enable ‘digital’ government. Self service delivery. 23. Sustainable government through lower costs – by sharing information 24. Sharing between – citizens, government, other jurisdictions. Partners with – industry, third party, NGOs 25. Information no longer ‘held hostage’ 26. Potentially influence legislation to incorporate information sharing principles 27. Release the potential of Qld government information holdings 28. Support/manage citizen consent for information sharing. 29. Appropriate sharing, opt-in (service pull), involuntary (Service push) 30. Information shared for public good and in public interest |

## 

## Goals

The specific goals to be delivered in support of the IA vision are:

|  |
| --- |
| * Enable delivery of information sharing as per goals outlined in Queensland Government ICT Strategy * Aim to reduce unnecessary duplication of Queensland Government information. * Allow government services to only create and retain minimum information needed to provide effective and efficient service * Support sharing of useful information with agencies and partners where possible. * Prefer use of established government sources for information over creating local capabilities to create it afresh |

|  |
| --- |
| **Consultation feedback points:**   1. These five points summarise a large number of inputs received during consultation. These inputs are shown below. Are there any other points from the consultation that should become part of the high level goals for the QGIA? 2. Clear governance - authorising processes, escalation, accountability, leadership, collaboration 3. Continuously challenge real and perceived barriers to information sharing - legislative, cultural, security, technological 4. Improve the ability to weigh all risks - ensure that the risks of “not” sharing the information is weighed along with the risks to sharing 5. Trusted sources for commonly required content. 6. Information Sharing support mechanisms in place 7. One stepping off place for government information 8. Decrease complexity 9. Innovation 10. Create and retain minimum info needed to provide effective and efficient service 11. Whole of govt business enablement / service enablement 12. Proactive business intelligence 13. Client-centric view 14. Standards-based interoperability by design. Support technical and information interchanges needed. 15. International standards for information architecture 16. Breaking down barriers to information sharing 17. Information is valued and managed 18. Information is managed during its lifecycle 19. Joined-up service delivery 20. Customer needs / Service provision / delivery needs 21. 'Glossary’ master data management 22. trust in government services – single view of customer 23. Taxonomy of govt information 24. Increase productivity / lower waste 25. Right information to support informed decision making 26. Reduce cost and effort of collection, processing and storage 27. Connectivity to business layer 28. Protection of privacy 29. Common language 30. ‘Known unknowns’ 31. Standard approach to information security 32. Efficient / effective service delivery 33. Common definitions 34. Methodology for valuing / costing information 35. Break down the silos 36. Single signon 37. Simple 38. Consistent user experience 39. Completeness of information 40. Decisions based on best and most relevant information 41. Interoperability by design 42. Agree on how we share information 43. Vertical integration (3rd party data sharing) 44. High quality accurate information 45. Improve useability 46. Managed set of shared information 47. Data standard 48. Get information sharing dialogue into realm of exec and business leaders. Establish a forum or decision maker in departments 49. ICT solutions and services should be designed, implemented and managed to ensure secure exchange of trustworthy information and solution interoperability 50. Govt gets fundamental principles in place 51. Custodianship 52. Transparency 53. Standard logical data models for information sharing 54. Enhancing information quality through wider visibility 55. Increase ROI 56. Legislative approaches to encourage re-use of information 57. Data exchange – agreement (tool) between source system and receiver system. Defines governance (eg. further use, sharing, etc) 58. Business understands and actively promotes the value of information sharing 59. ESB for info data mapping between ESB and agency 60. Roles and Responsibilities defined and accepted 61. Core information foundation centrally managed and shared 62. Standards and protocols applied 63. Clear ownership and governance 64. Information profiled 65. Custodian approved information accessible 66. Forum, decision profiles, business benefits from sharing are clear 67. Supported by data architecture and security architecture 68. FNQ, not just SEQ. Appropriate and relevant information available to all customers and providers regardless of location or service. Enable optimum service delivery 69. Supports business architecture and services architecture |

## Principles

The **principles** sections outlines key lines of thinking that help to guide how the IA is designed and how the goals can be implemented. The content in this section is initially derived from the updated approach being used for the QGIA, but augmented with feedback and content from consultation with architects across the sector.

|  |
| --- |
| The updated QGIA should reflect these **principles, characteristics and capabilities**:   * Relevant to business needs, provides guidance for outcomes * Targeted solution material for major information sharing domains * Initiatives for information sharing can be rapidly delivered using tools from IA * Simple to use (pick up and understand within an hour of first touch) * Fast to deliver results (pre-built patterns for common information, reference sites, resources) * Usable in systems from simple to complex (lightweight enough for lots of small projects, deep enough for complex projects) * Leverage existing QGIA artefacts in a clear and logical manner * Show clear benefit from use (value for architects, managers, projects) * Support more frequent standardised information sharing (reducing bespoke point to point connections) * Allow more consistent information sharing (using standard data formats, interchange mechanisms and interfaces) * Establish better governance over information sharing (interchange agreements, data custodianship, etc) * Be supportive of open data access for government data sets * Deliver tools that are compatible with infrastructure as a service (where underlying apps and technology may be abstracted) * Support better information access and sharing for government service suppliers, working in a contestable future environment. * Allows cost effective development and delivery of solutions using standardised information elements and access methods |

|  |
| --- |
| **Consultation feedback points:**  These points summarise a large number of inputs received during consultation. The additional raw inputs from workshops and meetings are shown below. Should any of these points from the consultation (or others) be considered as part of the high level principles for the QGIA?   1. Trusted 2. Secured 3. Timely 4. Simplistic 5. Visible / discoverable 6. Privacy aware 7. Managed 8. Negotiated exchanges 9. Continuous improvement 10. Supported 11. Transparent 12. Valued 13. Optimised 14. Information is an asset 15. Information is shared 16. Information is accessible 17. Information has custodianship 18. Needs basis (Service delivery) 19. Priority / need – staged implementation 20. Managed to increase value – improve returns, reduce costs. 21. Open data / public licenced / Creative Commons 22. Privacy aware 23. Privacy compliant 24. Disclosure issues 25. Secured, appropriately maintained, confidentiality, integrity, authenticated 26. Classified appropriately 27. Ownership of responsibilities (eg. escalation, security) 28. Culture of collaboration 29. Commitment by agency DGs to principles 30. Accountability 31. Business value / opportunities 32. Client self update of information 33. Self service – open to others 34. Custodianship 35. Info is owned and managed 36. Transparent 37. Less bureaucracy 38. Consistency 39. Processes to ensure continued value 40. Liability managed 41. Multiple uses: information is structured for both primary and secondary uses in delivery, management and improvement of services 42. Data set vs information assets – visibility of information sources 43. Default information visible (information catalogue) 44. Make it MoG-proof – don’t tie to specific agency structures, make adaptable. 45. Make information open for sharing, but link to consequences to misuse 46. No hiding of information – connect to funding to remove impediments for sharing 47. Data collection / capture standards 48. Date stamping (does this mean notarising?) 49. Profile impacts of information kept – why collected, why used? 50. Taxonomy, standard terminology. Information CF (?) 51. Integration 52. Portable open standards 53. Follow standards, ie. sharing information is easier when it conforms to internal, national and international standards. 54. Interoperability with Cth and states 55. Follow, not lead. Adopt existing standard services where possible 56. Ask for help from other sectors, eg library, archive experts 57. Dspace, DC, library of standards 58. Data quality, data integrity 59. Agreed adoption of standards – industry defined for preference, not bespoke 60. Authoritative. Trusted vs single point of truth 61. Trusted – accurate, reliable, current, confirmed 62. NGO contracts – penalties for misuse 63. Treat government as a single entity? 64. Processes to remove information if needed? 65. Governed |

## Strategies

The **strategies** section covers the specifics of what is needed to deliver the environment in the vision. These strategies concentrates on ‘what’ that capabilities need to be, and do not detail the ‘how’ on building the capabilities needed.

|  |
| --- |
| The delivery of the updated QGIA should utilise these **strategies**:   * Use business driven entry point for architecture journey * Incremental steps from business need to info architecture * Support for partial adoption of architecture * Emphasis on tools for collaboration support * Manage trust when sharing * Coordinate governance * Broker sharing arrangements * Support contestability * Support infrastructure as a service * Support Open Data * Create future environment to support connected government |

|  |
| --- |
| **Consultation feedback points:**   * 1. These strategies are a distilled view of a broader set of strategy inputs received during consultation. Are there other points detailed below that should be included into the core strategy elements?   The strategies were collected and ranked by contributor votes.   * Top ranked * Agile approach for strategy * Transaction log and summary of reporting (KPIs, performance reporting) * Consistent process * Conceptual model – prioritised * Set up information sharing governance board * Identify master information repositories across government * Ranked second * Inventory of industry models (that already exist) * Determine information value in dollar terms * Assess readiness for adoption of whole of govt standards for sharing * Third top * Identify key barriers – eg. legislation * Establish a governance model that is feasible and simple * Comms and marketing – awareness, education, road tours, campaigns, champion / evangelise * Awareness * Redefine the domain class framework * The points below are listed as raw input. * Funding model for information sharing – performance based * Common data dictionary * Catalogue information holdings – ecosystem. Metadata aggregation. * Support PSC directive for information sharing and Formalise information sharing policy – ref PSC or DPC * Achievable by existing staff * Business approach * ‘How to’ guide for sharing information * Government-wide policy – what we must share as a baseline * Re-use current APIs * Need to base sharing of information on priority to start with. * Endorsed by the top + terms of reference * Executive involvement * Include KPIs for info sharing up at exec levels – key enabler for delivery within agency * GITC to ensure that information sharing is addressed * Need to have clear view of * Benefits case for information sharing * Business value of not doing it in isolation * Value assessment – as needs basis |

# Information architecture update

## Introduction

In developing an updated information architecture, two constant themes have been the need to tune the architecture to the needs of the different audiences and also to match the different levels of detail needed to allow the appropriate design decisions to be made. Handling these two themes concurrently is proposed through a hybrid model based on existing established architecture frameworks.

The two frameworks selected are the reference model for open distributed processing (RM-ODP) that supports the architecture for distributed systems, and the Integrated Architecture Framework (IAF) that forms a key implementation component of TOGAF. RM-ODP provides different viewpoints for different audiences, and the IAF provides a layered approach to presenting the details appropriately.

This section initially discusses these frameworks, and then describes the hybrid model[[5]](#footnote-6) developed for the QGIA.

### Influence from reference model for open distributed processing

Although coverage of RM-ODP extends to the development of distributed systems, the value from RM-ODP for this QGIA is its use of ‘architectural viewpoints’, allowing multiple different groups to share a consistent but segmented view of a system being designed. The full detail of RM-ODP is not used in this work; the main value is in the mechanism for describing the different roles that contributors to an information sharing project will have.

An overview of the viewpoints from RM-ODP is shown below.



### Influence from integrated architecture framework

The IAF[[6]](#footnote-7) is an enterprise architecture framework that covers business, information, information system and technology infrastructure. The IAF is adaptable to the specific needs of an organization, and scalable from individual projects to enterprise-wide transformation. The IAF approach allows a clear progression to be taken, from business context down to implementable systems.

In the context of the QGIA, the principle value that the IAF brings is its model of different types of architecture description, accessible for different areas of the business. The figure below shows the structure of the IAF.



## QGIA definition approach

The figure below shows the layers proposed for the information architecture, based on the approach used in the IAF.



The viewpoints in the OM-RDP provide a convenient set of vantage points from which to describe the QGIA, as shown below.



The figure below shows the merger of the two subsidiary architectures that is proposed as the structure to hold the major new elements in the QGIA.



## Information artefacts

With this broad structure defined, specific artefacts can now be included into the cells, reflecting the different viewpoints and different abstraction levels. The figure on below shows the suite of new artefacts in the IA.



The artefacts inside the cells are the specific documents created as part of using the information architecture to deliver an information sharing project. Each of these artefacts is developed and used by different groups and at different stages of an information sharing project.

As noted in the previous sections, these artefacts are intended to leverage and complement the existing components from the QGIA, with the goal of allowing business-led information architecture to be used.

|  |
| --- |
| **Consultation Feedback Points:**  14. Does this suite of new artefacts adequately support the goal of business-led information architecture |

## Information architecture stakeholders and contributors

Different groups have varying needs, requirements, inputs and roles at different phases in the revised information architecture. The figure below shows the nominal set of groups, with business users at top left ranging down to technical implementation partners at bottom right.



The intention with this approach is that it allows business users to be part of the development of high level components in the project without getting overly involved in the solution design.

|  |
| --- |
| **Consultation Feedback Points**:  15. Does this suite of roles cover the right stakeholders in an information sharing project using the QGIA? |

## 

## Information architecture workflow

The revised structure for the information architecture provides a natural workflow process. Although it is not the role of the core architecture to also act as a project management methodology, it is a useful trait of the structure that the phases of work are easy to describe. The figure below shows how the phases of work can be undertaken.



The workflow commences with a trigger event, typically the request to establish a new information sharing project. Once the basis of a project has been established, the ‘inception’ phase can be undertaken where a conceptual enterprise view is developed.

From this initial work, the ‘understand’ and ‘planning’ phases are commenced. The ‘understand’ phase develops a logical model of the project, but still from the enterprise viewpoint. The planning phase develops conceptual, logical and implementation material from the information viewpoint. This is the core of the information architecture activity, and also leverages the information management lifecycle model described later in this document.

The design phase is where the scope of the information architecture tapers and the application/technology architectures come into focus. As noted in the figure above, the implementation blueprint (if being developed) is also done at this phase, producing an architecture pack that can be passed to system implementers to build.

The final phase is the implementation, where the system is actually built. The tasks in this area are not in scope for the information architecture, but some of the elements from the IA can be leveraged to assist in governing delivery.

Project delivery will be managed using an appropriate methodology and governance mechanisms. These are beyond the scope of the information architecture, but are vital for successful project delivery.

|  |
| --- |
| **Consultation Feedback Points:**  16. These workflow phases may overlap with project management tasks, and may also interact with technical design activities. Does the IA need to acknowledge these other influences, or is this simpler view more appropriate for the information sharing phase? |

## Workflow phases

The workflow described in the previous section can also be expressed in more traditional phase form. The figure below shows the phases identified and the artefacts that will be developed during each phase.



|  |
| --- |
| **Consultation Feedback Points:**  17. There are other artefacts that will also be required during these phases, such as business requirements and functional requirements. Should the IA acknowledge these other elements, or does the current more narrow focus offer a more accessible model for usage? |

# Information architecture artefacts

## Overview

This section provides a summary description for the key elements outlined in the information architecture. Document templates for these elements should be developed as the adoption and integration of the artefacts through projects is undertaken; the scope of the coverage in this document is to describe the purpose and key attributes of the documents to guide further refinement. Appendix B provides more details on the internal elements of the documents.

As noted in earlier sections of the paper, some of the elements described in this section may overlap into other areas of traditional project or program management of technical delivery. The intention with including these elements into the supporting materials around the information architecture is to allow the ‘business-led, outcome-driven’ principles to help make efficient use of the focused input from users of the solution.

## Business scenarios

This section is deliberately loosely defined to allow for flexibility in selecting the most appropriate tools for the project being undertaken. Projects should select the elements that are the best fit for their environment in this area.

### Environment scan

The environment scan is typically undertaken during a scoping exercise, testing whether an information-sharing project is needed and feasible. It is intended as a lightweight method for developing an early insight on the conditions in which the system will be working.

### Concept of operations

The purpose of this component is to describe the high-level operations of an information-sharing environment that is based on the use of the information architecture. The document identifies the ongoing benefits for stakeholders of the solution, and may describe its workings, possible implementation and key policy and legislative considerations.

### Business scenarios

Business scenarios provide a narrative description of a business interaction using a particular aspect of the information sharing environment. The emphasis is on a user story, and there is a user persona that describes the particular elements as seen from their viewpoint. Business scenarios are less precise than a use case, but allow for business user validation of the expected behaviours.

## Business use cases

Business use cases provide a more formal description of specific business flows within an information-sharing environment. Although they are more commonly used to drive business requirements, the use cases can also assist in the planning processes for developing information architecture components.

## Information classifications

Information classification is a key activity to assist in the development and delivery of information sharing projects. The material in this area is linked directly back to the existing QGEA White Paper on supporting classification definitions.

## Information sources

This artefact develops a description of the sources for information when sharing. These sources are based on the standard set used in the existing QGEA (transactional, analytical, authored and published), but additional types may be developed.

## Business process models

Although business process models are not generally regarded as part of information architecture, they can be very useful in providing a clear description of the business workflows that are being supported through information sharing. There is a much broader subject domain in process modelling that is not in scope for the IA; this work covers only the elements that are of specific benefit in an information-sharing project.

## Logical information specifications

This is a key document for driving the information architecture. At the core of the information specification is the information model that collects and describes the entities to be shared.

## Logical service specifications

There are several components grouped under this heading. The theme running through all of them is that the logical specifications for information architecture are where the in-principle agreements can be translated to specific service descriptions.

### Logical service specifications

The purpose of the logical service specification is to identify the logical system roles required to realise the roles identified in the information sharing environment. It identifies the behaviour of the roles and the required logical services to support the community participating in sharing.

### Service Contracts

The service contract for information sharing is an important artefact that allows the specifics of exchanging information between two entities to be managed. The content in this section is initially based on a service contract model for service oriented architectures, and it is anticipated that this will be further refined to cover an appropriate set of elements to be covered for information sharing.

### Collaboration specification

The collaboration specification captures the key elements of an arrangement between parties to share information. The content in this area is at a business-level, where the service contract is more granular and specific. There is further work needed to refine the approach in this domain.

## Technical information specifications

This component is not generally in scope for the information architecture, but the content is included here for completeness.

The purpose of the technical information specification is to provide further, implementable level of detail on the information artefacts specified in the logical information specification, and reflects the specifics of the platform and standard/s chosen.

### Conformance profile

This component is not generally in scope for the information architecture, but the content is included here for completeness.

The conformance profile is a key tool for use in assessing implementations against the guiding specifications used to build the systems. The profile captures the key points of conformity within the logical service specification, technical service specification, logical information specification and technical information specification.

The intention of the conformance profile is to precisely describe how an implementer is expected to demonstrate conformance against the specification.

### Implementation and support material

This component is not generally in scope for the information architecture, but the content is included here for completeness.

This component captures elements of how to adopt, implement and operate the solution and its component parts in a specific customer or implementation context.

|  |
| --- |
| **Consultation feedback points:**  18. Further updates of these artefacts will be based around project case studies of how the artefacts work together. Will small scale projects demonstrate the validity of the templates adequately, or should larger projects be preferred for robustness? |

# Information management lifecycle methodology

## Overview

The information architecture workflow described in Section **Error! Reference source not found.** noted usage of an information lifecycle model in the planning phase. The planning phase contains the core artefacts from the information architecture that are used in an information sharing project:

* information classification
* information sources
* logical information specification
* technical information specification.

A valuable supporting tool in the development of these artefacts is the information management lifecycle. The intention of the lifecycle is to make it easy for a project to decide whether to apply the QGIA, and then to make effective use of the tools to deliver the project outcomes sought.

The lifecycle can be used as a standalone tool, and is a useful touchstone for projects that are considering information sharing and need to determine whether usage of the QGIA will assist in delivering better outcomes from the projects.

The model is based on the approach described in the Australian Government Information Interoperability Framework[[7]](#footnote-8), and is highly compatible with the approach used in IS44[[8]](#footnote-9) within Queensland Government. The updated model for use in QGIA is shown below.



The following sections describe each of these stages.

## Trigger

There is generally a commencement event that starts the process of planning for information sharing. With the detailed and diverse range of services offered by government, making a well-informed decision on what approach to use can be difficult. This section offers guidance on when (or when not) to use the QGIA.

Use the QGIA if:

* The project will involve multiple agencies sharing information over an extended period.
* The project will establish an information source that will be leveraged by other agencies or partners through the use of standardised access agreements.
* The project is sharing information with an agency that is already using the QGIA.
* There is not an established information architecture approach used in the business domain.
* The project is mandated to use the GEA by exceeding cost thresholds.

Use other approaches if:

* The project is an enhancement of a legacy system with a local embedded information modeling approach. (However, the project manager should consider developing an interface using the ‘service façade’ pattern to allow the legacy system to work in the current environment).
* The project is internal-only, with information that will not be shared outside the agency.
* Select this option as an exception. Even small projects can still derive benefits from leveraging part or all of the information architecture on a small-scale basis.
* Note that small internal IT systems have a tendency to become the long-term solutions. Deciding not to use a standard approach may be a limitation when the system’s scope is expanded in subsequent phases.

|  |
| --- |
| **Consultation feedback points:**   * 19. Are there other considerations in the trigger phase – reasons to use or not use the QGIA |

## Plan

The work in this phase considers the business problem being addressed. Is a new system needed, or can a legacy system be leveraged to solve the problem? What types of information need to be shared? Who are the creators, custodians, owners and managers of the information? How will the information be shared? What will the information be used for? How will information security and privacy be managed?

Planning includes the identification of the information requirements relevant to any work activity. In striving to achieve Information Interoperability, agencies should do the following:

* Identify the potential uses of new information collections, particularly any potential for its use by other agencies and citizens and any long-term storage requirements. They should address these uses in the planning and designing stage.
* Adopt standard concepts and definitions for recording data and items so that information can be easily compared.
* Consider any potential barriers to making the information available to others. Ongoing third party consent issues should be addressed.

## Create/collect

This phase considers the practicality of either creating or collection the information for the project. Information is created, collected, captured or accessed in a variety of ways from a variety of sources as part of a business need. Information can be created or collected by, or on behalf of someone or some agency. Prior to creating new information holdings agencies should undertake a review to determine if the information required can be sourced from an existing collection.

In collecting information agencies should:

* inform the providers of the information of the purpose and intended uses of the collection and seek appropriate consents
* monitor and manage the quality of information as it is collected to ensure that it is accurate and adequately meets the intended purpose.

## Organise/store

This phase assesses where and how is the information being stored, and how it is being organised. Once created or collected, information needs to be organised and stored to enable consistent treatment (for example, logical organisation/collation to best reveal patterns and trends) and to enable easy location/access/retrieval to support business processes.

To better support users, agencies should organise and store:

* Information in a manner where common requests for access can be serviced efficiently.
* Appropriate metadata so that information can be described to and discovered by users easily and efficiently. (Metadata is data about data. It includes information describing aspects of actual data items, such as name, format, content, and the control of, or over, data.)

## Access

This phase examines how the information will be accessed. Considerations at this stage include where the information is static and unchanging or transactional and how access will be managed.

The information may be accessed and used in a range of ways. These may involve using information in its original state, manipulating it in some way, including integrating information from a number of sources, and reusing information. Conditions relating to access and use should ensure that information use is appropriate, carried out responsibly and is consistent with the source. Also, access should only be granted to those who have an appropriate business requirement for the information, taking into account legal, policy and administrative obligations.

Practices that agencies should adopt to facilitate appropriate access to information holdings include:

* making information holdings and data collections visible in relevant networks, portals and directories
* considering whether special access protocols are required to allow appropriate access to sensitive information, for example limiting access via a supervised data laboratory or using ethics committees
* documenting and publishing conditions of access and use that will apply to the information
* providing a contact point for information requests
* ensuring that privacy, confidentiality and security as well as other legislated obligations are met when servicing requests for information
* meeting requests in a timely and efficient manner.

## Use

This phase considers how the information will be used. Will it be internal to a project, internal to an agency, shared with other agencies, shared with industry partners, accessible by citizens?

In facilitating the use of information holdings, agencies should consider whether there is a need to:

* provide special support and education to key users
* establish supply-use agreements and information sharing protocols with key users to provide certainty and clarity around service levels, conditions and responsibilities.

## Maintain

This phase will assess how the content of information is to be maintained and how its quality can be managed to an agreed level. If information is being shared, how are changes propagated to other users?

The information lifecycle includes the effective maintenance of information, and in some circumstances, its disposal. With this is mind, agencies should:

* liaise with users when considering terminating, disposing of, or making content changes to collections
* conduct audits and reviews of security, quality, accessibility and compliance with access and use conditions.

## Dispose

This final phase assesses how the information will be disposed of when no longer required. Some information that is managed by government has statutory requirements around its management, with strict settings on its disposal.

An area of complication in this area is correctly managing the policy settings from downstream users of information. There may a need to use a hierarchical policy framework approach, where the needs of users can cascade up to the managers of information. Any decisions made on the eventual disposal of information that may be relied upon by multiple parties should be wrapped in a robust policy framework.

The complexity in this domain is anecdotally a strong indicator on why agencies have historically preferred to have a local copy of information that may come from outside, in spite of the information synchronisation issues that this may create. Having an approach that can treat this area effectively will be a litmus test for a whole-of-government approach to managing information architecture.

# Information sharing pattern library

## Introduction

The pattern library in the QGIA is intended to offer a rapid path for implementation of specific information sharing projects. The projects can leverage specific sections of the QGIA to deliver the functionality needed.

The intention is that architects in an agency project can pick up a pattern and use it as a reference model to rapidly build their own implementation approach that will be aligned with the QGIA and has been proven in implementation already. The benefits of this approach are:

* provides fast access to solutions that are already proven
* allows agencies to easily adopt partial sections of the QGIA
* encourages a standardised approach to implementing particular solution domains
* permits vendors of products to validate their implementations against patterns that government may choose to use.

|  |
| --- |
| * **NOTE:** In this current draft framework document, many of the patterns are initially just listed for consideration. As the updated architecture is applied in pilot projects, the content will be incrementally generated and incorporated back into this area of the overall information architecture |

## Service Directory

The need for a service directory is common across many government agencies, and there are many directories across government to meet these local needs. To assist in improving the customer experience of searching for services across government, the One-Stop-Shop initiative is establishing a whole of government persons and services directory.

This whole-of-government directory can offer an aggregated view of services across government, and will be a common integration and information sharing point for agencies. To illustrate the model being considered, this pattern shows the generic structure of a directory that is aggregating information from a number of sources across government.



* data connectors are implemented using defined APIs
* defined APIs are underpinned by standard data schema (may be described using USDL)
* data flows can be bi-directional.

## Point to point file sharing

Point to point sharing is the most common information sharing pattern. The information can be structured or unstructured, the transfer can be through a variety of mechanisms. Use an information planning approach to map out both sides of the interaction.

One application writes a file that another later reads. The applications need to agree on the filename and location, the format of the file, the timing of when it will be written and read, and who will delete the file.

## Sharing repository

Information being sent to a repository or information being sourced from a repository are variations on the repository pattern. The key is that the push to repository and the subsequent pull from it occur at different times and are not linked. In other words an information source cannot predict who will use the information uploaded.

By consequence, the user of data cannot raise any data quality issues with the publisher of information. Policy-based access control and audit may be necessary here.

Multiple applications share the same database schema, located in a single physical database. Because there is no duplicate data storage, no data has to be transferred from one application to the other.

## Store and forward messaging

One application publishes a message to a common message channel. Other applications can read the message from the channel at a later time. The applications should agree on a channel as well as the format of the message. The communication is asynchronous.

There are many commercial solutions that work in this domain, and hence no shortage of standards and systems. Being able to standardise on some elements through information architecture will be beneficial.

## Information sharing broker

The recently published Queensland Government information sharing blueprint discussed plans for an information broker service that will assist in delivering information sharing capabilities. It is envisaged that a library of information architecture patterns might be developed to assist agency users in understanding what this service offers and readily available material showing how it can be adopted into agency systems.

## cIDM usage

The Queensland Government Citizen Identity Management system (cIDM) is approaching adoption readiness. To support agencies in being able to quickly and easily incorporate the system into their own systems, it is proposed to develop a series of information architecture patterns to illustrate usage.

## Cloud storage

The recent ICT Action Plan emphasises the need to rapidly move towards solutions using ‘infrastructure as a service’ delivery. For government systems, this means that information will be retained and managed using systems operated by industry partners, and with an increasing emphasis on storage and compute capacity delivered by outsource environments.

The management of information is critical when working in this updated environment, and it is proposed that the QGIA hold a number of patterns that describe best practice for cloud storage and hosted infrastructure.

## CRM

The management of customer information is a core task for many government information systems, and there is significant benefit in developing and adopting a common approach to its implementation. There are a number of CRM projects in flight at present, and it is proposed to develop a suite of information management patterns that capture and model the key workflow elements and models.

This library of patterns will be of significant value if government agencies seek to leverage a common technical platform for delivery, or have a requirement to interoperate with other agencies on programs such as One-Stop-Shop.

## Sensitive information sharing

Although all of the information that government collects and manages is treated carefully, some information has increased sensitivity, particularly in relation to health systems, criminal justice and child safety. Although sharing such information is vital to delivering good service outcomes, managing the sensitivity around the information is vital.

To support agencies in handling these processes appropriately, it is proposed to develop a suite of information architecture patterns to manage sensitive information, up to ‘CABINET-IN-CONFIDENCE’ level. Although existing documentation captures the detail effectively, drawing the patterns up to the whole of government information architecture will allow them to be both visible and adopted where needed.

|  |
| --- |
| **Consultation Feedback Points:**  20. Are there other patterns that should be considered for inclusion in the QGIA? |

# Information sharing standards

## Introduction

To support the goal of providing pragmatic guidance for information sharing, this section lists selected standards that support delivery of specific functions within the information architecture domain. It is expected that this list will be further expanded as other standards are also ratified.

|  |
| --- |
| **NOTE:** In this current draft framework document, the standards are simply listed for consideration. As the updated architecture is applied in pilot projects, the content will be incrementally generated and incorporated back into this framework. |

## Interchange of client information – AS4590

This standard sets out requirements for data elements for the interchange of client information. The data elements covered comprise party identification, person details, organisation details, addressing and electronic contact details

## Addressing – GNAF

G-NAF is a composite of information supplied by Australia’s government mapping agencies and land registries, the Australian Electoral Commission and Australia Post.

Each Australian State and Territory government mapping agencies and land registries (Jurisdictions) contributes data to the PSMA Geocoded National Address File (G-NAF). The source databases they maintain are generally referred to as Geocoded Jurisdictional Address Files (G-JAF).

The reference source for this data is at <http://www.icsm.gov.au/street/>.

## Service directory – USDL

The Unified Service Description Language was developed[[9]](#footnote-10) in 2008 for describing business, software, or real world services using machine-readable specifications to make them tradable on the Internet. Past efforts were concentrated on developing languages, such as WSDL, CORBA IDL, and RPC IDL, which focused on the description of software interfaces. The Internet of Services requires services to be traded, placing emphasis on the description of business-related aspects such as pricing, legal aspects, and service level agreements. This was the motivation to create USDL.

The usage of USDL is not yet widespread, and this area is regarded as an open topic that requires further input from stakeholders. The development of an effective approach in this domain may be led by an exemplar project in an agency project such as One Stop Shop[[10]](#footnote-11) that can become a repeatable implementation model.

Refer to <http://www.w3.org/2005/Incubator/usdl/> for further information on the USDL standard.

## Open data

The release of open data sets has been an active area in the recent past. There are many ways to structure such data, but initiatives such as OData are helping to bring a standardised method to the development of interfaces.

OData is a standardised protocol for creating and consuming data APIs. OData builds on core protocols like HTTP and commonly accepted methodologies like REST. The result is a uniform way to expose full-featured data APIs.

Ref: <http://www.odata.org/> for further information.

|  |
| --- |
| **Consultation Feedback Points:**  21. Are there other standards that should be considered for inclusion in the QGIA? |

# 

# Information architecture next steps

This document lays out a detailed blueprint for the refresh of the Queensland Government Information Architecture. The approach proposed leverages the existing content in the architecture where possible, but prefaces the framework with a more accessible approach for its use. The new model allows business users to be more involved in the definition and scoping phases, and the different viewpoints permit a clean but consistent view of the important elements.

There is a significant body of new material presented in support of the revised model, and it is recognised that although this document is a jump forward, more work needs to be done to stabilise and finalise the changes. To this end, the following future steps are proposed:

**Short term (1-3 months)**

* circulate architecture back to stakeholders who contributed to the workshops
* gather and aggregate feedback and fold changes back into document
* apply framework in real projects as a ‘proof of concept’, using the nascent architecture to build implementable specifications for projects
* incorporate the findings from these projects back to the main body of architecture material
* further elaborate patterns and standards.

**Medium term (3-12 months)**

* finalise document templates and reference implementations of the information architecture
* harmonise the information architecture against updates of the broader Queensland Government Enterprise Architecture.

Develop case studies for the usage of the information architecture in exemplar projects in government

Current IA artefacts

| Asset Name | Asset Type |
| --- | --- |
| [Asset lifecycle guideline (IS44 toolbox)](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2340-asset-lifecycle-guideline-is44-toolbox) | Guideline |
| [CMS requirements (IS26 toolbox)](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2442-cms-requirements-is26-toolbox) | Toolbox |
| [Decision making flowchart (IS46 toolbox)](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2460-decision-making-flowchart-is46-toolbox) | Toolbox |
| [Determining the ex ante release status of information](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2621-determining-the-ex-ante-release-status-of-information) | Guideline |
| [Identification and classification of information assets guideline (IS44 toolbox)](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2342-identification-and-classification-of-information-assets-guideline-is44-toolbox) | Guideline |
| [Implementing information governance guideline](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2373-implementing-information-governance-guideline) | Guideline |
| [Information access and use (IS33)](http://www.qgcio.qld.gov.au/products/qgea-documents/570-workflow/2539-information-access-and-use-is33) | Toolbox |
| [Information access and use guideline (IS33)](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/3160-information-access-and-use-guideline-is33) | Guideline |
| [Information access and use policy - IS33](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2333-information-access-and-use-is33-info) | Policy |
| [Information architecture supporting classifications white paper](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2337-information-architecture-supporting-classifications-white-paper) | Guideline |
| [Information architecture white paper](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2338-information-architecture-white-paper) | White paper |
| [Information asset custodianship](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2546-information-asset-custodianship) | Toolbox |
| [Information asset custodianship - IS44](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2339-information-asset-custodianship-is44) | Information standard |
| [Information assets and their classification](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2347-information-assets-and-their-classification) | Fact sheet |
| [Information assets register guideline (IS44 toolbox)](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2343-information-assets-register-guideline-is44-toolbox) | Guideline |
| [Information classification framework definitions](http://www.qgcio.qld.gov.au/products/qgea-documents/570-workflow/2746-information-classification-framework-definitions) | Framework |
| [Information classification framework diagram](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2747-information-classification-framework-diagram) | Framework |
| [Information governance](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2620-information-governance) | Policy |
| [Information management maturity development guideline](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2352-information-management-maturity-development-guideline) | Guideline |
| [Information management maturity development template](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2354-information-management-maturity-development-template) | Template |
| [Information management policy framework](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2349-information-management-policy-framework) | Framework |
| [Information management roles and responsibilities guideline (IS44 toolbox)](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2345-information-management-roles-and-responsibilities-guideline-is44-toolbox) | Guideline |
| [Information management strategic framework](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2350-information-management-strategic-framework) | Strategy |
| [Information management work plan guideline](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2351-information-management-work-plan-guideline) | Guideline |
| [Information management work plan template](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2355-information-management-work-plan-template) | Template |
| [Information principles](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2615-information-principles) | Principles |
| [Intellectual property guideline](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2441-intellectual-property-guideline) | Guideline |
| [Internet (IS26)](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2534-internet-is26-info) | Toolbox |
| [Internet - IS26](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2446-internet-is26) | Information standard |
| [Mapping between the ANZLIC metadata profile and the 19 AGLS/NZGLS metadata elements (IS34 toolbox)](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2457-mapping-between-the-anzlic-metadata-profile-and-the-19-aglsnzgls-metadata-elements-is34-toolbox) | Toolbox |
| [Metadata (IS34)](http://www.qgcio.qld.gov.au/products/qgea-documents/570-workflow/2541-metadata-is34-info) | Toolbox |
| [Metadata - IS34](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2458-metadata-is34) | Information standard |
| [Metadata management guideline](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2459-metadata-management-guideline) | Guideline |
| [Queensland Public Sector intellectual property principles factsheet](http://www.qgcio.qld.gov.au/products/qgea-documents/2787-queensland-public-sector-intellectual-property-principles-factsheet) | Fact sheet |
| [Recordkeeping](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2545-recordkeeping) | Toolbox |
| [Recordkeeping (IS40)](http://www.qgcio.qld.gov.au/products/qgea-documents/547-business/2637-recordkeeping-toolbox) | Toolbox |
| [Recordkeeping - IS40](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2357-recordkeeping-is40) | Information standard |
| [Retention and disposal of public records (IS31)](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2537-retention-and-disposal-of-public-records) | Toolbox |
| [Retention and disposal of public records - IS31](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2360-retention-and-disposal-of-public-records-is31) | Information standard |
| [Use of copyright materials guideline](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2734-use-of-copyright-materials-guideline) | Guideline |
| [Use of the word architect fact sheet](http://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2506-use-of-the-word-architect-fact-sheet) | Fact sheet |

IA artefact detail

This appendix provides additional detail on the contents of the IA artefacts.

Environment scan

|  |  |
| --- | --- |
| Overview | The environment scan is typically undertaken during a scoping exercise, testing whether an information-sharing project is needed and feasible. It is intended as a lightweight method for developing an early insight on the conditions in which the system will be working. |
| Content | The purpose of the environment scan document is to describe the findings of a systematic analysis of the domain environment within which the adoption, implementation and maintenance of the solution to be developed will occur, covering:   * Key stakeholders and end users * Existing business problems * Barriers to change * Existing information sharing standards * The current and foreseeable future state of the domain environment within government. * Opportunities for leveraging existing information sharing capabilities that may already be in place. * The environmental scan typically comprises: * Domain description, current and future state. * Analysis, stakeholders, existing prevailing specifications, regulation and policy * Summary and recommendations |
| IA Perspective | Conceptual |
| IA Viewpoint | Enterprise |
| Linkage to current IA artefacts |  |

Concept of operations

|  |  |
| --- | --- |
| Overview | The purpose of this component is to describe the high-level operations of an information-sharing environment that is based on the use of the information architecture. The document identifies the ongoing benefits for stakeholders of the solution, and may describe its workings, possible implementation and key policy and legislative considerations. |
| Content | The concept of operations is typically a standalone specification in narrative form comprising the following sections:   * Business problem statement * Capabilities of the future state * Benefits—a description of the benefits which could potentially be achieved in the future * Priorities and rationale * Scope * Conceptual architecture * Roles and participants * Services—and the function(s) performed * Business processes—within which users will interact with the Services described above * Service resilience—how key functions would be performed if one or more of the services are temporarily unavailable * Phased implementation * Governance and policy—issues to be resolved in relation to the conceptual architecture * Privacy—issues relevant to the conceptual architecture * Security controls * Adoption model * Change management |
| IA Perspective | Conceptual |
| IA Viewpoint | Enterprise |
| Linkage to current IA artefacts |  |
| Comments | The ConOps document can be a key document in the initial phases of an information sharing project, allowing a unified high-level view of a project to be shared across a broad range of influential stakeholders. |

Business scenarios

|  |  |
| --- | --- |
| Overview | Business scenarios provide a narrative description of a business interaction using a particular aspect of the information sharing environment. The emphasis is on a user story, and there is a user persona that describes the particular elements as seen from their viewpoint. Business scenarios are less precise than a use case, but allow for business user validation of the expected behaviours. |
| Content | Each business scenario within this component typically comprises:   * A description of the persona (a fictitious end user) to whom a scenario relates * An identifier for the business scenario * A narrative description of the user's interactions with a system * A structured breakdown (high-level steps) of the user's interactions with a system * The use case(s) to which each step in the business scenario relates (where applicable). |
| IA Perspective | Conceptual |
| IA Viewpoint | Enterprise |
| Linkage to current IA artefacts |  |
| Comments | Business scenarios are developed in advance of use cases, and can help to prioritise the cases that should be developed. |

Business use cases

|  |  |
| --- | --- |
| Overview | Use cases provide a more formal description of specific business flows within an information-sharing environment. Although they are more commonly used to drive business requirements, the use cases can also assist in the planning processes for developing information architecture components. |
| Content | Each business use case within this component typically comprises:   * An identifier for the use case * The name of the use case * The goal of the use case * The actors (roles) participating in the use case * Assumptions * Pre-conditions * Triggers * The basic flow of events * Any alternate flows of events * Post-conditions * The business requirement(s) to which the use case relates * The step(s) of the business scenario (or scenarios) to which the use case relates. |
| IA Perspective | Conceptual |
| IA Viewpoint | Enterprise |
| Linkage to current IA artefacts |  |
| Comments | If an information-sharing system is being established between two agencies, it is preferable to use a harmonised approach to use cases and to cross-reference where possible. |

Information classifications

|  |  |
| --- | --- |
| Overview | Information classification is a key activity to assist in the development and delivery of information sharing projects. The material in this area is linked directly back to the existing QGEA White Paper on supporting classification definitions. |
| Content | The QGEA Information Classification document[[11]](#footnote-12) is designed to assist agencies adopt a standard approach to understanding:   * the appropriate storage repository[[12]](#footnote-13) for information assets or groups of information assets; * the exchange methods for these repositories and other repositories both within the agency or between the agency and other parties; * the services that should be provided to support each repository; and * applicable whole of government standardised terms, conditions and rules for information exchange transactions, as well as guidelines to support information exchange, access and use. |
| IA Perspective | Conceptual |
| IA Viewpoint | Information |
| Linkage to current IA artefacts | QGEA Information Architecture Supporting Classifications  QGEA Identification and Classification of Information Assets |
| Comments | Further refining the transition from the revised IA to established artefacts such as the classifications framework will be an important area for making effective use of the solid existing content. |

Information sources

|  |  |
| --- | --- |
| Overview | This artefact develops a description of the sources for information when sharing. |
| Content | There are four standard types of information in the QGIA that may be sources for an information-sharing project.   * **Transaction data** are business transactions that are captured during business operations and processes, such as a purchase records, inquiries, and payments. * **Analytical data** are derivations of the business operation and transaction data used to satisfy reporting and analytical needs. They reside in data warehouses, data marts, and other decision support applications. * **Authored** – unstructured data that can make up over 70% of an organization’s data and information assets. They include documents, digital images, geo-spatial data, and multi-media files. * **Published** - unstructured content assembled and/or transformed from its component pieces, into a desired format and disseminated to a target audience and implemented using technologies that optimise discovery, search and retrieval.   Note: These concepts may be further refined in future updates of the architecture. The adoption of open APIs and data standards in place may provide impetus to refresh these types.  Some additional categories of information source may also be useful to capture.   * **Metadata**, defined as “data about the data”, is the description of the data. Examples of metadata include the data name, data dimensions or units, definition of a data entity, or a calculation formula of metrics. * **Master data** refers to the enterprise-level data entities that are of strategic value to an organization. They are typically non-volatile and non-transactional in nature. Customer, product, supplier, and location/site are some of the common master data entities. * **Reference data** are internally managed or externally sourced facts to support an organization’s ability to effectively process transactions, manage master data, and provide decision support capabilities. Geo data and market data are among the most commonly used reference data. * **Big data** refer to large datasets that are challenging to store, search, share, visualize, and analyze. The growth of such data is mainly a result of the increasing channels of data in today’s world. Examples include, but are not limited to, user-generated content through social media, web and software logs, cameras, information-sensing mobile devices, aerial sensory technologies, genomics, and medical records. * **Temporal data** – captured at absolute timestamps. Vital in industrial process control, financial markers, legal capture, etc. |
| IA Perspective | Conceptual |
| IA Viewpoint | Information |
| Linkage to current IA artefacts | GEA Information Architecture Supporting Classifications  GEA Identification and Classification of Information Assets  GEA - IS18 Information Security |
| Comments | The other key element to be covered is information security classifications. This will affect how information can be shared in terms of management, transport, storage and disposal. There is a close link to the work in IS18 required in this area. |

Business process models

|  |  |
| --- | --- |
| Overview | Although business process models are not generally regarded as part of information architecture, they can be very useful in providing a clear description of the business workflows that are being supported through information sharing. There is a much broader subject domain in process modelling that is not in scope for the IA; this work covers only the elements that are of specific benefit in an information-sharing project. |
| Content | Process modeling is typically undertaken in progressively more detailed layers, commencing from the enterprise view (Level 0), and down to function allocation (Level 4). For information architecture and sharing purposes, models down to Level 2 are helpful.  Process models should be scoped to cover just those areas supporting information sharing and governance, and only business-domain processes that have a government-themed drivers. |
| IA Perspective | Logical |
| IA Viewpoint | Enterprise |
| Linkage to current IA artefacts | GEA Information Architecture Supporting Classifications  GEA Identification and Classification of Information Assets |
| Comments | Further refinement of the approach to process models may be needed to harmonise with modelling standards used across government. |

Logical information specifications

|  |  |
| --- | --- |
| Overview | This is a key document for driving the Information Architecture. At the core of the information specification is the information model that collects and describes the entities to be shared. |
| Content | A logical information specification describes key information objects and their relationships in the form of an information model.  In general, a logical information specification consists of the following elements:   * Key information objects * Information models comprising information objects and their relationships * Taxonomies for classification of objects * Ontology for relating information objects * Abstract data types and structures * Terminology bindings where applicable |
| IA Perspective | Logical |
| IA Viewpoint | Information |
| Linkage to current IA artefacts |  |
| Comments |  |

Logical service specifications

|  |  |
| --- | --- |
| Overview | The purpose of the logical service specification is to identify the logical system roles required to realise the roles identified in the information sharing environment. It identifies the behaviour of the roles and the required logical services to support the community participating in sharing. |
| Content | A logical service specification typically consists of the following elements:   * System roles. This should provide a succinct overview of the complete responsibilities of all of the roles. Each system role section will encapsulate—   + one or more service interfaces   + constraints applicable to roles interactions   + constraints to the systems fulfilling the roles * Service interfaces, defined so that they can be easily migrated into standard API definitions if required.   + Service operation   + Pre-condition   + Post-condition   + Inputs, outputs, faults   + Exception conditions * Service interface correspondences to information objects, including their state transitions (specified in the logical information model), in particular through inputs, outputs and faults. |
| IA Perspective | Logical |
| IA Viewpoint | Computational |
| Linkage to current IA artefacts |  |
| Comments | This component provides a platform independent specification of the systems and services to be implemented within the information sharing community. |

Service Contracts

|  |  |
| --- | --- |
| Information sharing – service contract | |
| Overview | The service contract for information sharing is an important artefact that allows the specifics of exchanging information between two entities to be managed. The content in this section is initially based on a service contract model for Service Oriented Architectures, and it is anticipated that this will be further refined to cover an appropriate set of elements to be covered for information sharing. |
| Content | A service contract describes the obligations of a system component, whereby one or more related interactions are grouped to form a service interface. The figure below shows a conceptual view.  In SOA systems, a UML interface can be used to group such interactions and model a service. There are two approaches to service interface interactions:   * The service contract is specified through the UML provided interface. * A service contract can be described in terms of the provided interface and related required interface of the client component.   For information sharing, the contract might also cover service level agreements, quality of service measures and possibly commercial arrangements around usage of the data. There may also be scope to include security and usage policy elements into the contract. |
| IA Perspective | Logical |
| IA Viewpoint | Computational |
| Linkage to current IA artefacts |  |
| Comments | This area is important for the effective operation of information sharing, especially in government environments where it is important to have clear visibility of the expectations and parameters around the sharing of information. |

Collaboration specification

|  |  |
| --- | --- |
| Overview | The collaboration specification captures the key elements of an arrangement between parties to share information. The content in this area is at a business-level, where the service contract is more granular and specific. There is further work needed to refine the approach in this domain. |
| Content | The type of information sharing to be undertaken will guide the content in the specification. To provide an established framework as a commencement point, the approach utilised for the National Collaboration Framework[[13]](#footnote-14) is utilised here.  The NCF is a structured approach to collaborative service delivery across traditional boundaries. The Framework provides a tiered approach for Government agencies to follow when seeking to collaborate. The Framework defines a process where parties first agree on collaboration principles. The Framework also provides a suite of re-usable documents and tools (including the Collaborative Head Agreement) that aim to provide enhanced collaborative service delivery arrangements across government departments and agencies.  There are five tiers of collaboration type:   1. **In principle commitment to collaborate - Statements of Principles to Collaborate:**Explicitly recognise and capture the principles and values that guide collaborative service delivery across jurisdictions 2. **Business commitment to collaborate - Statements of Intent:** Agree in advance the business basis to collaborate across multiple initiatives 3. **Collaborative Head Agreement - Collaborative Head Agreement:** Agree in advance those elements of a cross agency agreement that can be reapplied to multiple collaborative initiatives 4. Commitment to collaborate on specific projects - Project/Initiative Specific Agreements:Agree those elements that are specific to a particular project/initiative 5. Commitment to collaborative tools, standards and procedures - User Guide: Includes checklists specific to collaborative service delivery |
| IA Perspective | Logical |
| IA Viewpoint | Computational |
| Linkage to current IA artefacts |  |
| Comments |  |

Technical information specifications

|  |  |
| --- | --- |
| Overview | This component is not generally in scope for the information architecture, but the content is included here for completeness.  The purpose of the technical information specification is to provide further, implementable level of detail on the information artefacts specified in the logical information specification, and reflects the specifics of the platform and standard(s) chosen. |
| Content | Elements of a technical information specification are:   * Background about the logical information specification * List of platform and standards used (technology viewpoint) * Data types used * Schemas for documents used * Schemas for messages used * Specific terminologies/vocabularies used * Mappings to the logical information components * Local extensions (if needed) |
| IA Perspective | Implementable |
| IA Viewpoint | Information |
| Linkage to current IA artefacts |  |
| Comments | Note that one logical information specification may be instantiated using one or more technical implementation specifications. |

Conformance profile

|  |  |
| --- | --- |
| Overview | This component is not generally in scope for the information architecture, but the content is included here for completeness.  The conformance profile is a key tool for use in assessing implementations against the guiding specifications used to build the systems. The profile captures the key points of conformity within the logical service specification, technical service specification, logical information specification and technical information specification.  The intention of the conformance profile is to precisely describe how an implementer is expected to demonstrate conformance against the specification. |
| Content | The conformance profile includes:   * statements about how information systems can conform to the specifications * a description of the conformance levels applicable to implemented solutions. |
| IA Perspective | Logical and Implementable |
| IA Viewpoint | Technical |
| Linkage to current IA artefacts |  |
| Comments |  |

Implementation and support material

|  |  |
| --- | --- |
| Overview | This component is not generally in scope for the information architecture, but the content is included here for completeness.  This component captures elements of how to adopt, implement and operate the solution and its component parts in a specific customer or implementation context. |
| Content | The material consists of the information required to successfully adopt or implement the solution specified:   * Context * Reference to related specifications * Constraints, including information security and dependability constraints, platform specific constraints or rules * Assumptions * Prerequisites * Release information * Implementation specific requirements * Specific implementation guides * Business process guides * Privacy and consent considerations * Legislative requirements * Stress, volume / scalability requirements * Testing material * Compliance, conformance and accreditation criteria * Service management guides and documentation, including guides to SLAs * Maturity planning and assessment guides |
| IA Perspective | Implementable |
| IA Viewpoint | Technology |
| Linkage to current IA artefacts |  |
| Comments |  |

Document history

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Version | Date | Status | Key changes made | Author/s |
| 0.0.1 |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

1. Ref: <http://www.qld.gov.au/dsitia/assets/documents/ict-strategy-action-plan.pdf> - accessed Dec 2013. [↑](#footnote-ref-2)
2. The Queensland Government Enterprise Architecture (QGEA) is the collection of ICT policies and associated documents that guides agency ICT initiatives and investments to improve the compatibility and cost-effectiveness of ICT across the government. Ref: <http://www.qgcio.qld.gov.au/products/about-the-qgea> - accessed Dec 2013. [↑](#footnote-ref-3)
3. It is anticipated that the information management lifecycle will be integrated more closely with the existing GEA ICT Planning Methodology as further updates are delivered. [↑](#footnote-ref-4)
4. Ref: <http://www.qgcio.qld.gov.au/images/documents/QGEA_documents/QGEA/Information%20Management%20Policy%20Framework.doc> - accessed Feb 2014 [↑](#footnote-ref-5)
5. This approach influenced by NEHTA’s Framework for eHealth interoperability. Ref <http://www.nehta.gov.au/implementation-resources/ehealth-foundations/EP-1020-2012>. Accessed Feb 2014. [↑](#footnote-ref-6)
6. Ref: <http://www.capgemini.com/resources/the-integrated-architecture-framework-explained> [↑](#footnote-ref-7)
7. Ref: AGIIF <http://www.finance.gov.au/information-interoperability-framework/> – accessed Feb 2014. [↑](#footnote-ref-8)
8. Ref: <https://www.qgcio.qld.gov.au/products/qgea-documents/548-information/2546-information-asset-custodianship> - accessed Feb 2014. [↑](#footnote-ref-9)
9. Ref: http://www.w3.org/2005/Incubator/usdl/ [↑](#footnote-ref-10)
10. Ref: <http://www.qld.gov.au/dsitia/initiatives/one-stop-shop/about/> - accessed Jan 2014. [↑](#footnote-ref-11)
11. The existing GEA Information Classification Framework should also be reviewed to ensure alignment with the updated information architecture. [↑](#footnote-ref-12)
12. These repositories themselves represent a form of information asset within the information architecture abstract model. [↑](#footnote-ref-13)
13. Ref - <http://www.finance.gov.au/collaboration-services-skills/national-collaboration-framework/> [↑](#footnote-ref-14)