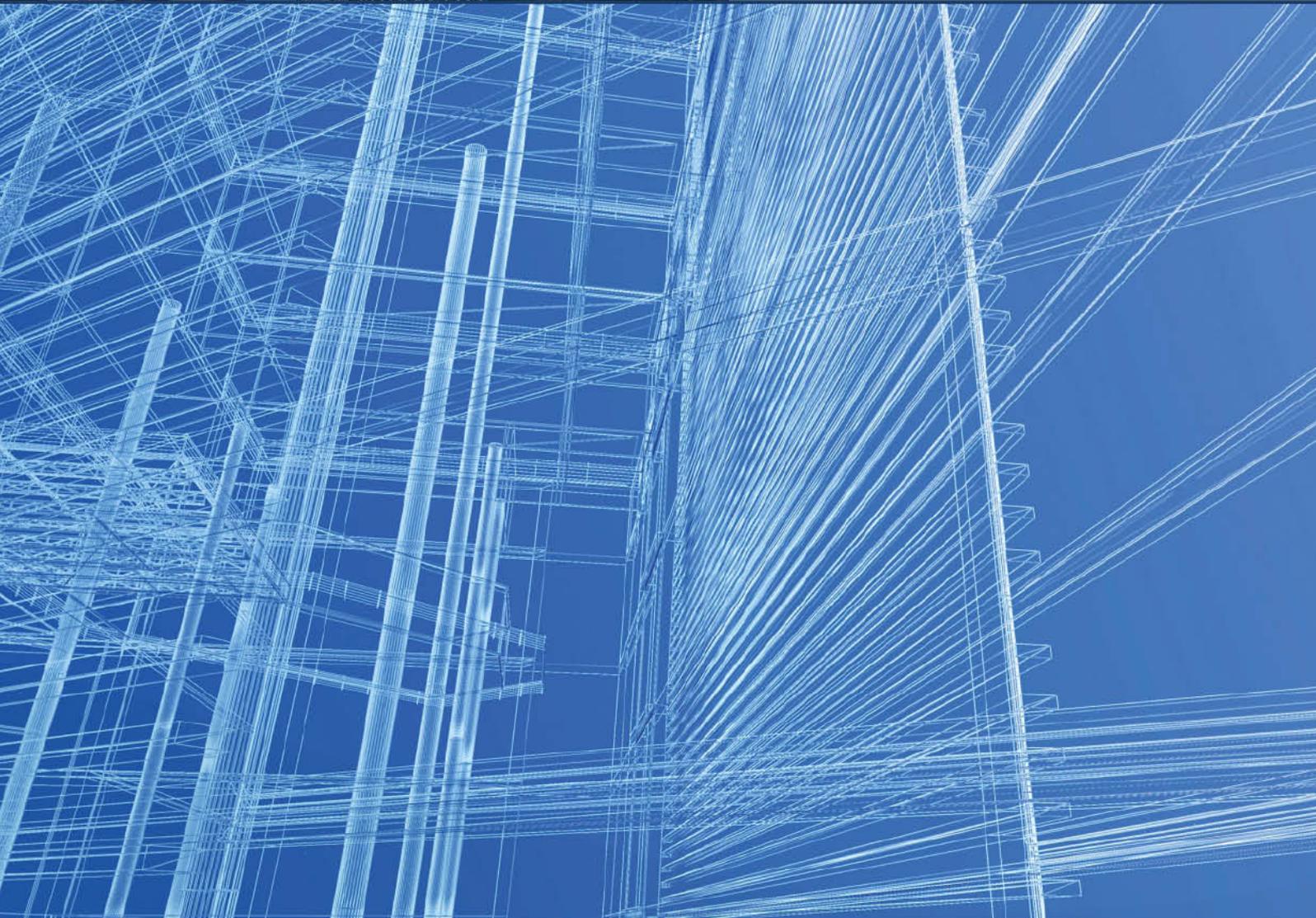


Queensland Government Enterprise Architecture Framework 2.0



**Shaping government ICT to
support business outcomes**



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Information security

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

Foreword

Governments face increasing demands for improved service delivery, expanding responsibilities in relation to maintaining the social fabric, and the need to advance social justice while fiscally constrained.

In response, the Queensland Government is committed to managing its information and exploiting ICT to manage its internal processes more effectively and achieve greater efficiencies. This commitment is crucial to maintaining and improving service levels to the public, enabling sustainable government operations and helping to build a strong, green, healthy, smart and fair Queensland.

Enterprise Architecture (EA) has been identified as the most appropriate decision making and management framework for enabling government and agencies to collaboratively provide seamless services and maximally leverage existing investments.

At the highest level, EA is about organising an enterprise's resources – its services, processes, information, applications, and technology infrastructure – and establishing technical choices and a supporting set of policies which help achieve desired business outcomes, technical standardisation and integration.

The QGEA is a tailored EA which delivers a comprehensive set of processes, frameworks, policies, guidelines and tools to describe how the Queensland Government organises its resources to support service delivery.

The QGEA assists agencies, multi-agency projects, shared service providers and whole-of-Government initiatives to:

- deliver services in a coordinated, cost effective and efficient manner
- improve the integration and alignment of decision making across the Queensland Government
- support coordinated decision making about strategic directions, policies and standards
- use information and ICT to achieve their business objectives
- guide the development, use, and management of information and ICT resources over time
- position themselves for future needs.

The Queensland Government Enterprise Architecture (QGEA) provides the decision making and management structures to support the development of better services for Queenslanders, more efficient and effective use of information and ICT in government and effective partnering with the private sector through the application of whole-of-Government, cross agency and agency information and information communications technology policies and practices.

The QGEA is a *federated* architecture, which acknowledges that the Queensland Government is a single enterprise composed of autonomous agencies. Agencies are responsible for their own enterprise architectures, yet are able to leverage and contribute to whole of-Government architectures and investments through a single consistent framework.

Since its publication in 2004, the original GEA Framework has been the subject of constant refinement and evolution to support EA across the Queensland Government. The QGEA Framework 2.0 represents the latest iteration. It fully supports the information management and ICT governance arrangements implemented in 2007 as the result of the *SDPC report into ICT governance in the Queensland Government* and Executive Government's 2008 decisions regarding revised ICT governance arrangements in the Queensland Government.

The QGEA Framework 2.0 is an important step in the unification of strategy, architecture and information policy across business, information, application and technology dimensions of the Queensland Government.

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1 Introduction

The development of an enterprise architecture and use of supporting enterprise architecture frameworks is not unique to the Queensland Government. Government jurisdictions and many private sector organisations use enterprise architectures. Queensland Government's use of enterprise architecture, which dates back to the late 1990s with the original Government Information Architecture, makes it a leading example of whole-of-Government enterprise architecture in Australia.

This document describes the Queensland Government Enterprise Architecture (QGEA) Framework, including the underlying meta model. It also describes the agency contribution process, including governance and compliance.

It has been produced for the use of officers within the Queensland Government involved in governance and delivery of ICT-enabled initiatives, ICT or business planning, business service design, portfolio analysis and management and other related business service and planning functions.

1.1 Outline of this document

Section 2 of this document provides an overview of the QGEA Framework and its operation, and provides detail for most readers, including non-ICT officers who want to familiarise themselves with the QGEA Framework and resulting QGEA¹.

Sections 3 and 4 provide more detail regarding the QGEA Framework and are intended for those officers who will manage or contribute to the QGEA or who manage implementation of the QGEA within agencies and require in-depth knowledge of the definition and operation of the QGEA Framework.

Appendix A contains a history of the QGEA, including its emergence as a key aspect of Queensland Government ICT policy and governance processes.

1.2 Enterprise architecture in Queensland Government

The Queensland Government views enterprise architecture as:

Organising an enterprise's resources – its services, processes, information, applications, and technology infrastructure – and establishing a set of policies and technical choices to achieve desired business outcomes, technical standardisation and integration.

To achieve effective enterprise architecture requires the application of a comprehensive and rigorous method for describing a current and future structure and behaviour for the Government's processes, information, applications, technology and supporting human resources. This will enable alignment with current strategic directions.

Although often associated strictly with information and communications technology, EA relates to the practice of business strategy, efficiency and effectiveness. It captures, documents, classifies and analyses all aspects of an enterprise in order to make the information relevant for different types of decision makers, such as business managers, business analysts, and technology specialists.

¹ The term "QGEA" is used to describe the collection of various enterprise architecture artefacts that are created under the QGEA Framework. Throughout the document, care has been taken to only use QGEA when referring to the manifestation of the Queensland Government's enterprise architecture in accordance with the framework.

The QGEA Framework supports enterprise architecture activity within the Queensland Government by defining:

- architecture practices to help drive business management improvements across the Queensland Government
- the agreed standard architecture abstraction levels across the Queensland Government
- a means to establish a standard and coherent set of classification or domain models of the whole-of-Government enterprise architecture
- a set of common artefact types in the form of strategies, principles, policies, requirements and other artefacts used to form the basis of the whole-of-Government target enterprise architecture
- a framework within which traditional enterprise architecture artefacts can be accommodated
- the means to describe the whole-of-Government target enterprise architecture
- mechanisms and tools for alignment with the whole-of-Government target enterprise architecture
- the governance and contribution process for the development, use and update of enterprise architecture artefacts.

2 Overview of the QGEA Framework

The QGEA Framework establishes a consistent structure for the Queensland Government's information management and ICT policy. It provides:

- a means to define classification frameworks covering business processes and services, the information they use, and the applications, technology and information security elements that support them
- a means to describe the current state of the Government's investment in information and ICT
- processes for development, management, approval and compliance of strategy, policy and related artefacts.

In summary, the QGEA Framework provides a means for the Government to define policy, requirements and targets which drive agencies in supporting the Government's priorities and providing services to help build a strong, green, healthy, smart and fair Queensland.

2.1 Key artefacts

The QGEA Framework describes a hierarchy of products (commonly called artefacts) as outlined in Table 1 below. The key enterprise architecture artefacts under the framework are Information Standards, QGEA policies, and QGEA positions. All of these artefacts support the Government's overall vision as articulated in *Towards Q2* and other whole-of-Government statements.

Table 1: Overview of the QGEA artefact types

Artefact type	Focus	Description
Principle	What are the beliefs and values that will guide the Government to achieve its vision?	These represent the core beliefs and values of the Queensland Government in relation to the management of information and underpinning technologies. They influence decisions made about the various resource and initiative portfolios across the sector and supporting agency processes.
Strategy	What general direction needs to be taken?	Strategies are short high-level documents intended to gain in-principle agreement from senior executives to a general course of action. The course of action will achieve an agreed desired future state or goal in support of the Government's vision in the form of ambitions and priorities. To that end, strategies establish a baseline of the current environment; identify the drivers that are leading to the need for change to a particular environment; articulate the future desired environment; and propose a series of actions to realise that future desired state.

Artefact type	Focus	Description
Information Standard / QGEA Policy	What are the specific directions, constraints and requirements which will achieve the Government's strategies?	These artefacts are clear and specific statements of direction based on general principles which support achievement of long term strategies or provide a response to issues. They include detailed constraints and compliance requirements and in doing so they provide agencies with an indication of the level of discretion available when making decisions. Information Standards and QGEA Policies are essentially equivalent in their function and are identified in the QGEA framework meta model as consisting of policy and requirement elements.
Position	What targets must be met to realise the stated policy outcomes?	These provide detailed goal statements relating to either policies or requirements and the associated performance or objective measures that indicate realisation of these goals.
Tools	How are the targets and policies to be met?	This is a general category for a range of supporting tools which assist agencies and initiatives in the implementation of strategies, policies and positions. Virtually any useful information may be published in the QGEA as a tool. Common artefacts include definition papers, guidelines, templates, implementation advice and methodologies.

The publication of a policy and its associated requirements as either an Information Standard or QGEA Policy is determined primarily on the context. Policies and requirements associated with the business or information layers of the QGEA, or those which address broad business issues, are published as Information Standards. Policies and requirements related to applications, technology or specific practices or methodologies are generally published as QGEA policies.

For further information regarding the artefact types of the QGEA see Section 3 The QGEA Framework in detail.

2.2 Authority and approval

The QGEA Framework was developed to support the mandated legislative provisions that deal with ICT policy in the Queensland Government, for example the *Financial Management Standard 1997*, established under the *Financial Administration and Audit Act 1977* and the *Public Records Act 2002*. The QGEA Framework also supports the Executive Government-approved administrative arrangements for ICT governance in Queensland as agreed in November 2008.

Consistent with these administrative arrangements, and those that have supported the Information Standards process for many years, the QGEA Framework, its associated policies, requirements and targets are issued by the Queensland Government Chief Information Office (QGCEO) after approval by the Queensland Chief Information Officer in consultation with the Strategic Information and ICT CEO Committee (as required)².

For further information regarding governance of the QGEA see Section 4.3 *Governance of the*

² Under the Executive Government decision taken on 24 November 2008, the Department of Public Works was designated as the lead agency for whole-of-Government ICT, and the Director-General directed to take on the role of Queensland Government Chief Information Officer.

QGEA Framework and artefacts.

2.3 The development and consultation process

Information Standards, policies and positions are developed using a defined process (see Figure 6 on page 15) in keeping with the Australian Policy Cycle³ that includes:

- pro-active identification of issues and risks associated with current and emerging business, service delivery, information management and ICT changes and issues
- analysis to quantify the nature and scale of the issues being faced by government in order to identify the policy options available to address them
- development of the most appropriate principles, policies, requirements and targets to achieve the desired results
- consultation with impacted stakeholders, including review by specialist reference groups followed by general distribution to the agencies of the Queensland Government and, in some cases, external stakeholders such as industry groups
- submission to the appropriate governance bodies and approval authority
- implementation of the policy, including undertaking business cases and resulting projects
- evaluation of the principles, policies, requirements and targets through regular reviews, monitoring and annual agency reporting of compliance.

For further information regarding development of the QGEA see section 4.1 *Development of QGEA artefacts.*

2.4 Compliance, review and exceptions

There can be significant legal consequences to the Queensland Government from third parties where an agency fails to implement and adhere to mandatory elements of the QGEA. A key strength of the QGEA Framework is the compliance reporting process which allows the QGCIO to monitor the effectiveness of ICT policy across the sector.

Agency compliance with QGEA artefacts is demonstrated by meeting criteria relating to the implementation of Information Standards, policies, requirements and targets, which means that agencies must show evidence of implementation action. This evidence is presented through an annual planning and reporting process consistent with the requirements of Section 22 of the *Financial Management Standard* and the November 2008 Executive Government decision relating to revised ICT governance reporting requirements in the Queensland Government⁴.

However, the variations and demands of agency service delivery require some flexibility. For this reason the QGEA Framework includes a formalised exception process approved by Executive Government for the achievement of the targets associated with positions.

The exception process requires the requesting agency to undertake its own risk assessment and then provide details regarding the impact of non-compliance, remedial action to be undertaken, associated costs and benefits of non-compliance and agreement to a timeframe to achieve consistency. For further information regarding agency exceptions see section 4.4.3 *Agency exceptions.*

³ The Australian Policy Cycle forms the approved policy handbook for the development of government policy in Queensland. See http://www.premiers.qld.gov.au/About_the_department/publications/policies/Governing_Queensland/ (accessed 19 December 2008).

⁴ Queensland Government agencies wishing to access specific details of this decision should consult with their local Cabinet Legislation and Liaison Officer.

3 The QGEA Framework in detail

This section details the technical composition of the QGEA Framework. An abstract model provides a high-level overview of the QGEA Framework. This abstract model is supported by a meta model which contains the detailed elements of the QGEA Framework, including definitions of key artefacts.

3.1 QGEA Framework abstract model

The QGEA Framework is conceptually divided into three key elements: context, artefacts and portfolios as shown in Figure 1 below.

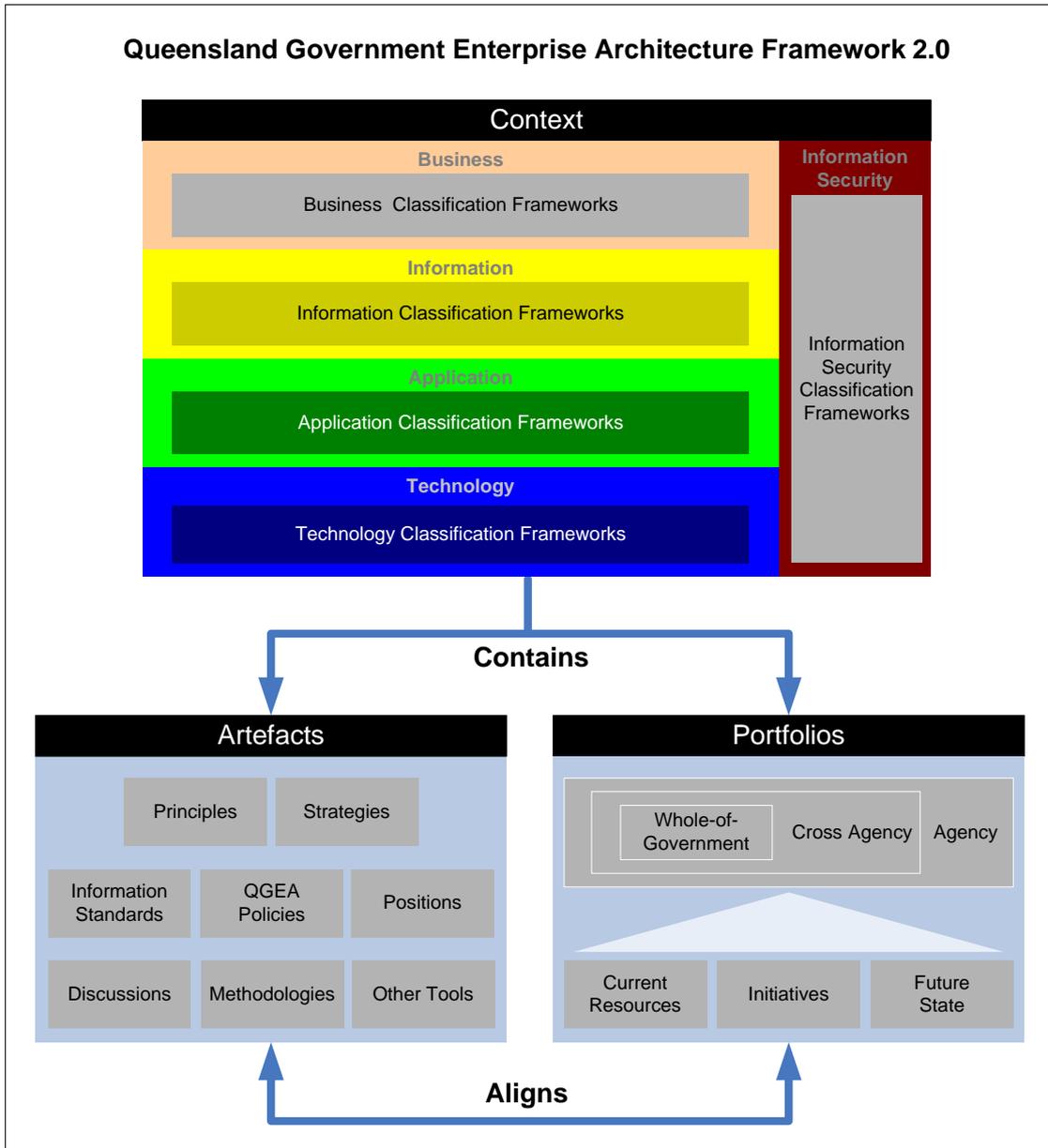


Figure 1: The QGEA Framework abstract model

A key strength of the QGEA Framework is the links between the elements. For example, the effectiveness of artefacts are measured through alignment of the portfolios, and the portfolios are analysed using context set by the various classification schemes within the QGEA.

Each of the elements of the QGEA Framework’s abstract model is described in the following section.

3.1.1 Context

The context is the structure that allows for organisation and navigation of the QGEA. It comprises horizontal layers such as the business, information, application and technology layers, and vertical slices such as the information security slice. Within each of these layers and slices, a hierarchy of classes or categories exist, known as domains.

While the abstract model shows only four layers and one slice, within these slices are many different classification frameworks. These are critical to the QGEA because they:

- set the specific context for artefacts such as strategies, policies and positions
- act as an index to allow agencies to navigate the QGEA to determine which apply to a particular layer, slice or domain
- provide a means for data collection and analysis of the architectural information associated with current resources used and initiatives⁵ being undertaken at all levels of the Government.

The Queensland Government's major endorsed QGEA classification schemes⁶ include the:

- Business Process Classification Framework⁷
- Information Classification Framework
- Application Classification Framework⁸
- Technology Classification Framework⁹
- Information Security Framework¹⁰.

3.1.2 Artefacts

The artefacts are the mechanisms¹¹ and supporting tools that guide the development, use and management of services, processes, information, applications and technologies across the Government to achieve the target enterprise architecture and whole-of-Government outcomes.

The artefacts are the active elements of the QGEA. They are developed using input from across the sector and from analysis of the architectural information¹² associated with various assets and initiatives and are prescriptive in nature.

There is a hierarchical relationship between various artefacts that represent alignment on the directions established through these artefacts. In particular, principles, strategies and policies have a hierarchical relationship whereby principles provide a driver for strategies, which in turn formulate policies.

⁵ The term "initiative" is used by QGCIO in preference to "project" to describe any investment in change, because such changes may be run as a program, project or one-off operational activity.

⁶ The QGEA has numerous classification schemes, but these five represent the most visible and widely used of those currently published.

⁷ This was originally known simply as the Business Portfolio Framework, based on the Process Classification Framework from the American Productivity and Quality Centre (APQC).

⁸ The Application and Technology classification frameworks, formerly portfolio frameworks, were originally based on Gartner's Market Segmentation Model.

⁹ The Application and Technology classification frameworks, formerly portfolio frameworks, were originally based on Gartner's Market Segmentation Model.

¹⁰ To be consistent with the other QGEA classification frameworks, this framework should rightly be called the Queensland Government Information Security Classification Framework. However, this name is used for the security-classification framework used for the security classification of information assets, which has been in existence for several years and is in wide use both within the Queensland Government and externally. In order to avoid confusion, this framework is referred to simply as the Queensland Government Information Security Framework (QGISF or ISF).

¹¹ In traditional policy environments, the term "policy instrument" would be used rather than "mechanism".

¹² Architectural information includes models and other data about government resources and initiatives.

3.1.3 Portfolios

The portfolios element of the QGEA Framework documents¹³ the *current* or *as-is* situation for existing resources and initiatives. Combining the current portfolio of resources and changes being implemented through the portfolio of initiatives provides a view of the planned future state of the Government enterprise. The final future state is influenced by the constraints and guidance provided by the QGEA artefacts on current resources and initiatives over time.

Resource and initiative portfolios are often logically categorised according to the scope of responsibility or agency coverage as follows:

- Whole-of-Government portfolios – comprise groupings of whole-of-Government resources and initiatives that cut across most of, if not the whole of, Government. For example, CITEC is the mandated internal service provider for foundation technologies such as servers and storage.
- Cross-agency portfolios – comprise groupings of resources and initiatives that cut across more than one agency. For example, the Integrated Justice Information Strategy (IJIS) is a cross-agency initiative that spans multiple agencies including Justice and Attorney-General and the Queensland Police Service.
- Agency portfolios - comprise groupings of resources and initiatives relating to a single agency.

From a government as a single enterprise perspective, the collections of the current agency portfolios, together with the cross-agency and whole-of-Government portfolios, represent the entire enterprise.

The various portfolios of both resources and initiatives are also the subject of ongoing portfolio management using approaches such as the Queensland Government's ICT Planning, Project, Program and Portfolio Management Methodologies.

3.2 QGEA Framework meta model

Underpinning the QGEA Framework abstract model is the QGEA Framework meta model (Figure 2). The meta model describes the QGEA Framework in terms of its key concepts, resulting artefacts, and the relationship between them. These relationships in turn provide the set of rules for structuring and populating the QGEA.

The QGEA Framework meta model¹⁴ is composed of the following elements:

- The concepts that form the basic logical structures of the QGEA Framework are derived from the elements of the abstract model. These concepts do not manifest as tangible EA artefacts.
- The artefact types and deliverables that form the physical outputs of the QGEA Framework and which populate the QGEA. In some cases these artefact types are composites of lower-level conceptual elements such as an Information Standard or QGEA policy being the composite of (conceptual) policy and requirements.
- The links between the concepts and artefact types which provide the foundational rules of the QGEA Framework expressed as relationships in terms of cardinality (e.g. one-to-many, one-to-one) and whether they are optional. These rules provide an indication of the dependency and precedence among the QGEA elements.

¹³ In the form of architectural information, such as registers of information, diagrammatic models etc.

¹⁴ The QGEA Framework meta model is expressed using basic entity relationship modelling notation for simplicity, but could also be expressed as a UML class structure or other appropriate information modelling notation.

Queensland Government Enterprise Architecture Framework 2.0 – Meta Model

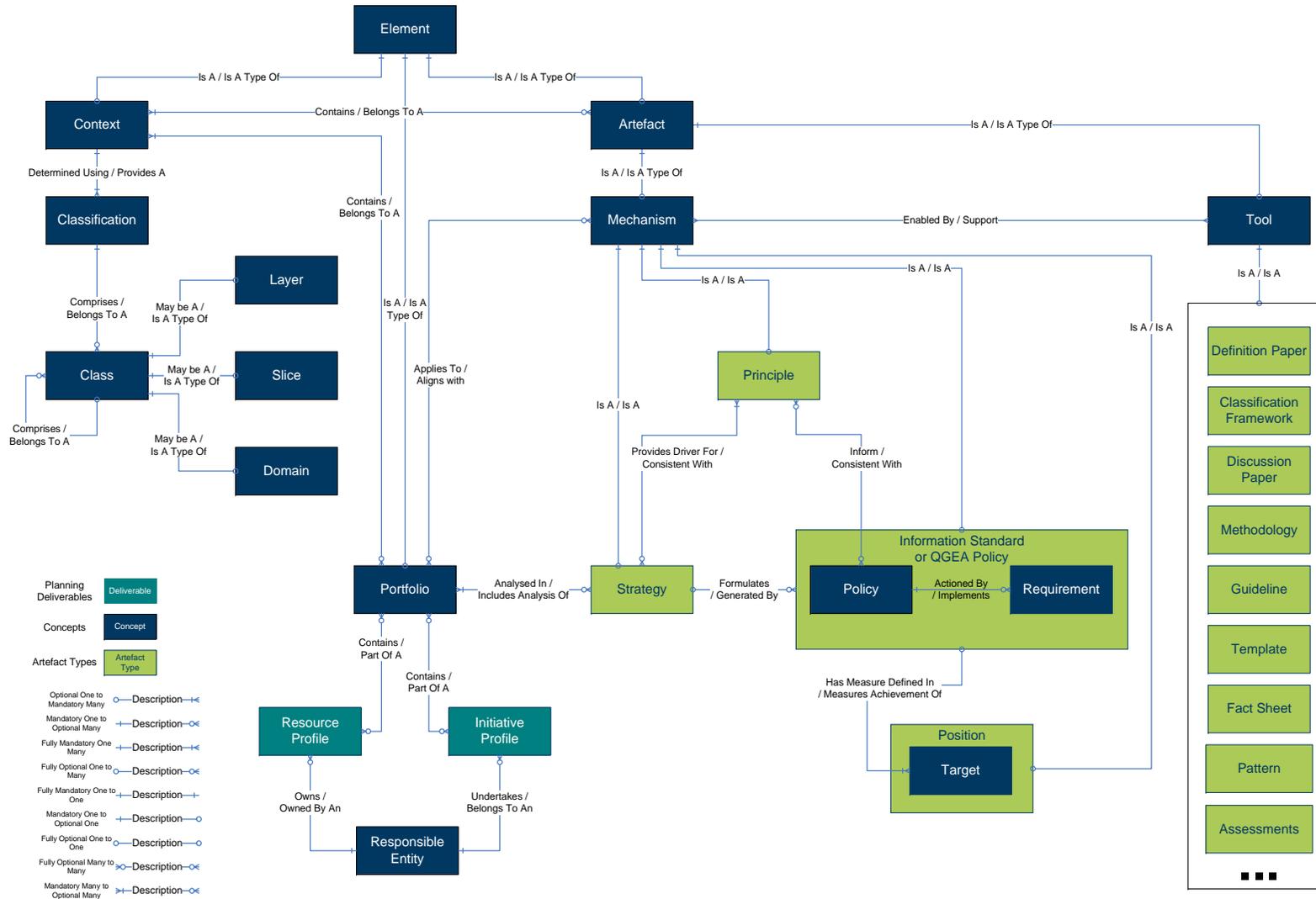


Figure 2: The QGEA Framework meta model

3.2.1 QGEA Framework concepts

The QGEA Framework contains a number of supporting concepts, as illustrated in Figure 3. These concepts are core to the operation of the QGEA Framework, but do not manifest as tangible outputs.

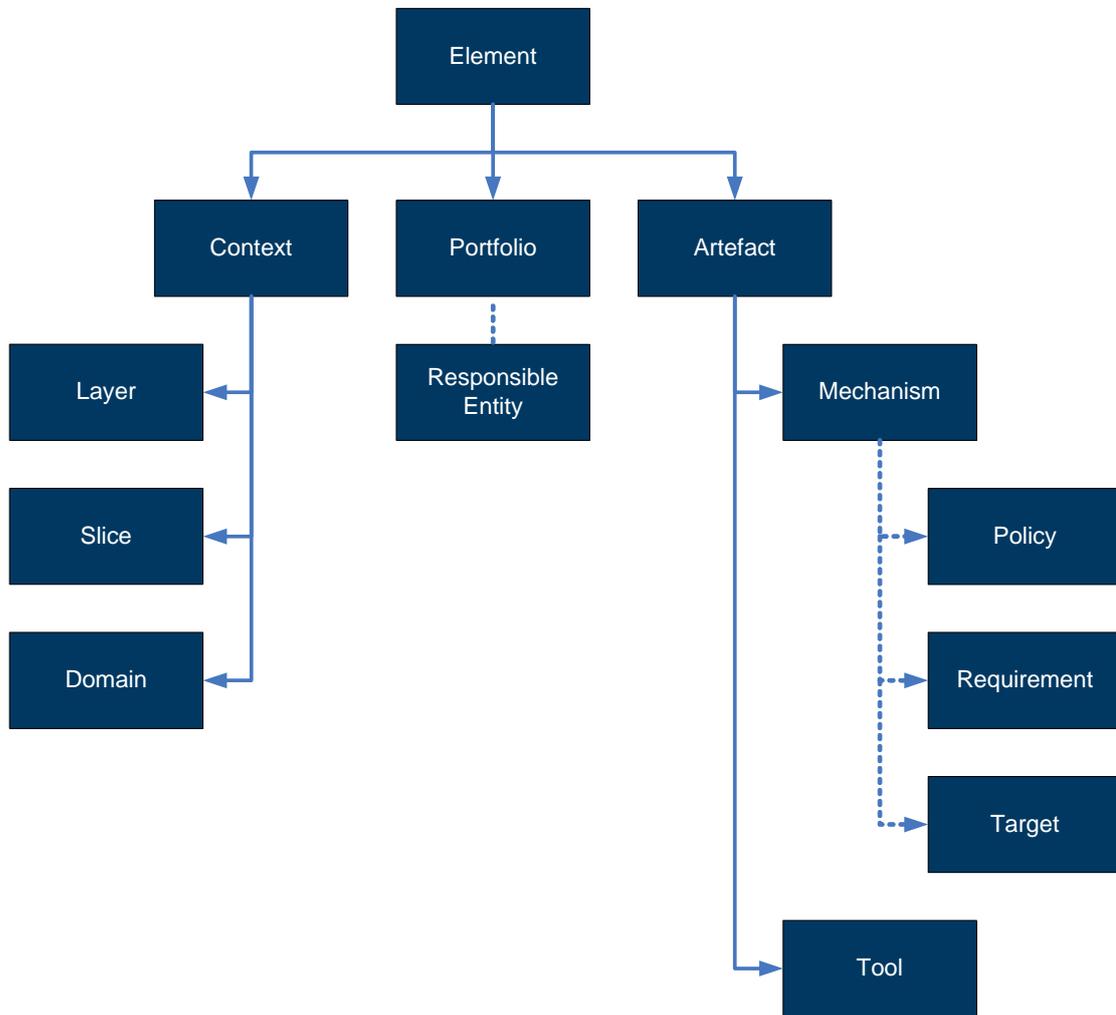


Figure 3: The core concepts hierarchy within the QGEA Framework

These core concepts, as defined below, provide the boundaries within which the QGEA artefact types that populate the QGEA operate¹⁵.

Element

The first of the QGEA Framework concepts is the notion that all aspects of the QGEA Framework are inherently elements of the framework¹⁶ itself. Each element can therefore be defined and these definitions published in the form of a definition paper. For example, if a new Management and Governance slice was introduced into the QGEA, then this new context would be described in the form of a definition paper.

The primary element concept contains the three key elements of the QGEA Framework as previously defined in the abstract model, namely context, artefact and portfolio. Both the context and artefact elements are then further broken down within the meta model into various specialised sub-

¹⁵ See section 3.2.2 QGEA Framework outputs and Appendix B: QGEA deliverable and artefact type definitions for further discussion of QGEA artefact types.

¹⁶ By “framework”, QGCIO means a set of assumptions, concepts, classifications, values and practices that constitute a way of viewing reality.

elements; however the portfolio concept is merely supported by the notion of responsible entities.

Context

Context in the QGEA Framework is provided through the various classification schemes. These classifications in turn comprise a hierarchy of classes that represent generic, bounded categories or capabilities that can be described using common attributes. A class within a given classification scheme can address one of three specific types of context recognised within the QGEA Framework: layer, slice and domain.

The three classes, also shown in Figure 3 above, are defined within the QGEA Framework as follows:

- **Layer** – Addresses the context of like elements that span across an enterprise in a horizontal fashion. Layers are dependent on one another and either flow top down or support each other in a bottom up fashion. For example, business processes contained within the business layer are in turn supported by information assets from within the information layer.
- **Slice** – Addresses the context of like elements that are pervasive within an enterprise in a vertical manner. Slices are only used for contexts that have applicability across all of the layers within an enterprise. For example, concerns such as privacy and security exist in a different form in all layers of an enterprise.
- **Domain** – Represents the fundamental building blocks of all QGEA classification frameworks. A domain is a specific category within a classification framework. Layers and slices themselves comprise classification frameworks that are hierarchies of domains. For example, the Application Layer contains the Application Classification Framework that defines the classes of functionality found within applications.

It should be noted that these various types of classification frameworks can also be nested. For example, the Information Layer contains the Information Classification Framework, but also some supporting classification frameworks such as the Information Content Types.

Portfolio

As outlined in Section 3.1.3, the portfolios element contains the *current* or *as-is* situation for existing resources and initiatives. Combining the current portfolio of resources and changes being implemented through the portfolio of initiatives provides a view of the planned future state of the Government enterprise. The final future state is influenced by the constraints and guidance provided by the QGEA artefacts on current resources and initiatives over time.

In this way, the portfolio element of the QGEA Framework provides an aggregation concept, which is different to the context and artefact elements which decompose into narrower concepts and artefacts or sub-types. The use of aggregation is critical to the QGEA Framework as it allows for the analysis of groups of related current resources and initiatives, which themselves are described in the form of individual profiles. It is the analysis of information about existing resources and profiles that provides the basis for the development of key artefacts such as strategies.

The determination of the grouping of various resource and initiative profiles is often a function of the context. For example, the profile of an agency's information assets is collected and reported at the information layer within the QGEA.

The inclusion of a resource or initiative in a portfolio depends on the rules of the portfolio, which themselves should be documented in a QGEA artefact such as a definition paper. For example, an information asset cannot be part of the application portfolio.

Responsible entity

The notion of the scope of responsibility within the QGEA Framework acknowledges the federated nature of the Queensland Government. For this reason, the QGEA Framework contains the concept

of a responsible entity. Responsible entities are generally considered to be either agencies, cross-agency initiatives and whole-of-Government initiatives, as previously defined in the discussion relating to the portfolio element of the abstract model (see section 3.1.3 Portfolios above).

Responsibility for various portfolios provides an understanding of who is required to ensure that the strategies, policies, requirements and targets within the QGEA are applied to various resources and initiatives. Responsible entities are also the entities whose performance is being measured when alignment to QGEA is assessed on an annual basis¹⁷.

Artefact

Artefacts within the QGEA Framework can be either mechanisms or tools. Mechanisms are artefacts that carry some form of governance mandate that applies to resources and initiatives within the various portfolios across the Government. Mechanisms include principles, strategies, policies, requirements and targets. Mechanisms describe the Queensland Government's desired future state and the means by which that future state will be realised.

In contrast, tools are supporting artefacts such as methodologies, guidelines and templates. Tools provide additional information and process that aid in the effectiveness of mechanisms. The existence of tools increases the likelihood of achieving the desired future state as defined by the mechanisms.

There are three additional conceptual framework elements that support the QGEA but only become tangible as part of composite published artefacts. These conceptual elements are:

- Policies – are clear and specific statements of direction based on principles which support achievement of long term strategies or provide a response to issues. Policies are documented and published in the form of either Information Standards or QGEA Policies.
- Requirements – provide the detailed constraints and compliance requirements for a given policy. In doing so, they provide agencies with an indication of the level of discretion available when making decisions in relation to resources or initiatives, as well as processes that they must follow. Requirements are documented and published with their associated policy in the form of either Information Standards or QGEA policies.
- Targets – are detailed goal statements relating to either policies or requirements and the associated performance or objective measures that indicate realisation of these goals. Targets are documented and published in the form of position papers.

3.2.2 QGEA Framework outputs

The tangible outputs generated under the artefact concept of the QGEA Framework fall into three categories: mechanisms, profiles and tools which are outlined in summary below.

Mechanisms

The QGEA Framework contains five different mechanisms which are used to communicate the Government's desired direction and future state regarding the information management and ICT environment.

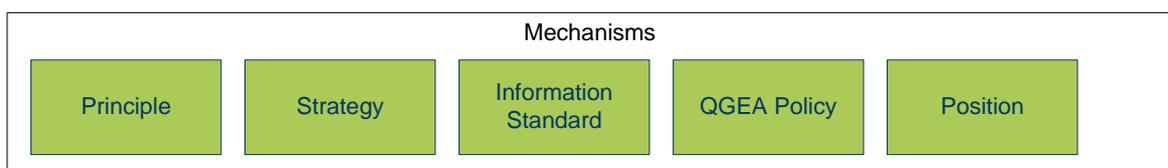


Figure 4 Mechanisms

¹⁷ Performance measurement and QGEA compliance for whole-of-Government or cross agency initiatives or bodies is the responsibility of the CEO of the host agency.

These mechanisms are as follows:

- Principles – represent the core beliefs and values of the Queensland Government in relation to the management of core aspects of the Government enterprise such as business strategy, business processes, information assets and underpinning applications and technologies. They influence decisions made about the various portfolios across the sector and supporting agency processes.
- Strategies – are short high-level documents intended to gain the agreement of senior executives to courses of action to achieve an agreed desired future state or goal. To that end, strategies establish a baseline of the current environment; identify the drivers that are leading to the need for change to a particular environment; articulate the future desired environment and propose a series of actions to realise that future desired state.
- Information Standards – are composite artefacts including both policy and requirement elements.
- QGEA Policies – are composite artefacts including both policy and requirement elements.
- Positions – are the set of related targets supporting achievement of associated Information Standard or Policy requirements.

The publication of a policy and its associated requirements as either an Information Standard or QGEA policy is determined primarily on the context¹⁸. The approach within the QGEA Framework is that policies and requirements associated with the business or information layers of the QGEA or those which address broad business issues are published as Information Standards.

For example, Information Standard 42 – Information Privacy (IS42) relates to the broad issues of information management relating to personal details and is considered to be an information layer policy linked to the Party – Person domain. Information Standard 2 – ICT Resources Strategic Planning (IS2) deals with the issues of planning ICT investments and governance over ICT decisions within agencies, making this a business layer policy associated with the Managing Information Technology - Plan for the Information Resource Management domain.

Policies and requirements related to specific applications, technologies or artefacts that address specific work instructions, operational practices or methodologies are published as QGEA policies. For example, in contrast to IS 33, the mandated use and implementation of the Government Information Licensing Framework (GILF) is a specific practice and is published as a QGEA policy.

Profiles

The QGEA Framework recognises that, in addition to the description of the desired future state of the enterprise as defined by the mechanisms, there is also a current state. Understanding the current state is important as it can inform the development of mechanisms and can be used to assess the impact of proposed future states.

The current state of the enterprise within the QGEA Framework is captured in the form of deliverables known as profiles. These can be grouped into portfolios for the purpose of analysis and prioritisation during planning, portfolio analysis or portfolio management activities.

There are two types of profiles in the QGEA Framework:

- Resource profiles – contain structured descriptions of one or more resources such as business services, business process, information assets, applications or technologies, including their domain classifications as well as relationships between the resources.
- Initiative profiles – contain structured descriptions of one or more initiatives, including details of

¹⁸ Until such time as the *Financial Management Standard 1997* is reviewed and the Information Standards provisions are harmonised with those of the QGEA, it will still be necessary to separate Information Standards and QGEA policies (and their associated positions) in this way.

the changes to service, process, information, application and technology they will bring about.

Tools

As previously outlined, tools are supporting artefacts that assist in achieving the desired future state defined by the mechanisms. While the QGEA Framework formally defines nine tools that are regularly produced across the Queensland Government, this list is not exhaustive. The intent is that a “toolbox” which supports a QGEA policy or Information Standard could be populated with a range of tools.

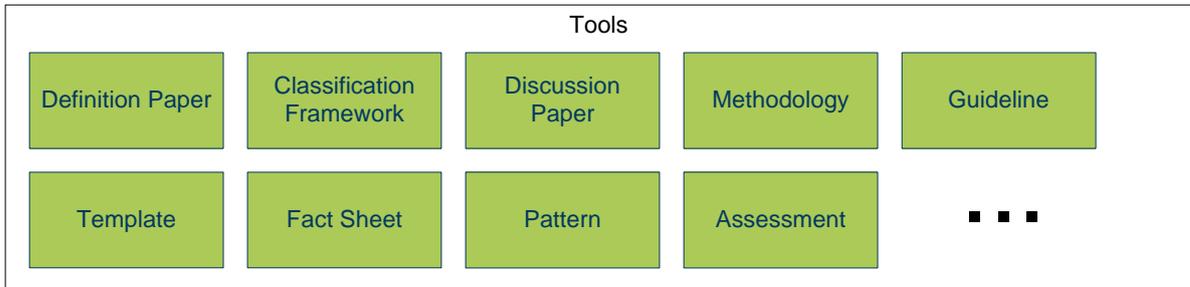


Figure 5 Tools

The nine formally defined tools are:

- Definition papers – provide background and an agreed whole-of-Government definition for a given topic or concept, including elements of the QGEA Framework itself.
- Classification frameworks – provide the published categorisation schemes with associated definitions used to provide context to the QGEA. These represent an articulation of the currently endorsed QGEA contexts.
- Discussion papers – raise issues on a topic to elicit further input from agencies or industry.
- Methodologies – document the processes, techniques, roles and output that describe the means for executing a standardised planning, management or control practice within the Queensland Government.
- Guidelines – provide additional information and support to assist agencies in aligning with a policy, requirement and target or to adopt or execute a methodology. Guidelines may contain technical standards, techniques, advice or checklists.
- Templates – provide an agreed structure for the consistent presentation or capture of information within a methodology or other process.
- Fact sheets – provide a brief summary of the key points of interest or concern surrounding a QGEA artefact type, their context or content.
- Patterns – provide a generic description of key elements of a problem and potential solutions in a given area.
- Assessments – provides an appraisal or measure.

The above tools are by no means the only tools that may prove useful to increase the effectiveness of mechanisms. Other communication and marketing tools such as presentations and brochures can also prove important, but from a QGEA Framework perspective, they do not need to be fully prescribed.

4 Using the QGEA Framework

The QGEA is a source of authority for numerous activities across Queensland Government. As a result, the QGEA is not static, nor are QGEA artefacts developed in isolation.

The major activities associated with the development and governance of the QGEA Framework and QGEA artefacts are described below.

4.1 Development of QGEA artefacts

Artefacts are developed by various agencies through a defined policy process underpinned by EA practices¹⁹. This includes cross-agency consultation and agreement facilitated by the QGCIO and Queensland Government Chief Technology Office (QGCTO).

This process, known as the QGEA Cycle, is shown in Figure 6 and draws from the Australian Policy Cycle used across the Queensland Government. The QGEA Cycle is the high level model under which QGEA artefacts are produced in accordance with the QGEA Framework Meta Model.

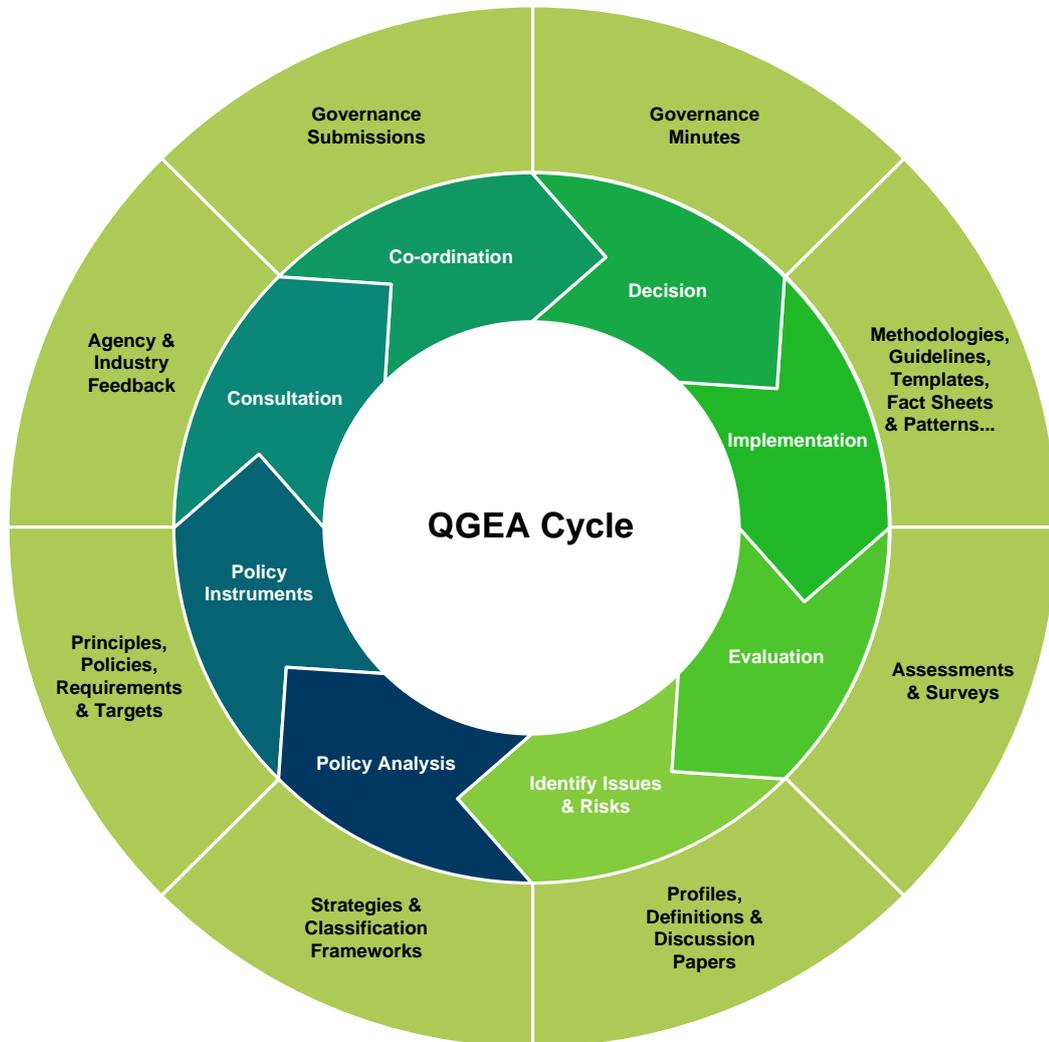


Figure 6: The QGEA Cycle

Table 2 outlines the specific activities that are undertaken in each stage of the cycle and the QGEA

¹⁹ EA practices include modelling and analysis of the enterprise as the basis for strategic input into the various technological and non-technological plans, requirements and solutions that underpin business outcomes.

artefacts that typically result from each stage.

Table 2: QGEA Cycle description

Lifecycle stage	Activities	Outputs
Identify Issues and Risks	<p>Identification of issues and risks, or indeed opportunities, involves the active monitoring of current and emerging business, service delivery, information management and ICT changes and issues.</p> <p>This is achieved through various means, primarily through analysis of the current state of the Government as an enterprise relative to industry trends.</p> <p>Issues and risks that are considered significant or present opportunities to further the objectives of the Government become subject to policy analysis.</p>	Resource profiles, initiative profiles, discussion papers and definition papers
Policy Analysis	<p>Policy analysis involves undertaking steps to quantify the nature and scale of the issues being faced.</p> <p>This may require the development of portfolios to group together existing resource and initiative profiles for the purpose of analysis. It may also require the creation of classification frameworks to aid in the analysis process.</p> <p>Once the issues associated with the current situation are properly defined, the options available to address them can be identified and strategic responses developed.</p> <p>These strategies form the basis of the desired future state of the enterprise.</p>	Strategies and classification frameworks
Policy Instruments	<p>Policy instruments must be developed based on the analysis conducted and the desired future state to be achieved.</p> <p>This involves determining the most appropriate principles, policies, requirements and targets to aid in realisation of the desired future state.</p> <p>During this phase, tools may also be developed to aid policy implementation. However, the creation of tools is generally considered to be more closely aligned with the implementation stage of the cycle.</p>	Principles, policies, requirements and targets

Lifecycle stage	Activities	Outputs
Consultation	<p>Formal consultation is undertaken based on governance rules for QGEA artefacts.</p> <p>Consultation involves the distribution of artefacts to impacted stakeholders. This will primarily be through review by specialist reference groups followed by general distribution to Queensland Government agencies. In some cases, consultation may include external stakeholders such as industry groups.</p> <p>The impact of the proposed artefact on agencies, particularly agency capacity to apply mandatory principles of Information Standards within the proposed timeframe, is to be taken into consideration when refining the artefact based on consultation feedback.</p> <p>This formal consultation on specific policy instruments should complement previous consultation conducted for any artefacts, such as definition papers that preceded the policy instruments stage of the cycle.</p>	Agency and industry feedback
Co-ordination	<p>Upon completion of consultation, including any re-work required to address concerns raised, the policy instruments are submitted to the appropriate governance body.</p> <p>This may involve a submission to a series of bodies, such as advisory bodies, before consideration by the final decision-making group.</p>	Governance submissions
Decision	<p>Once a decision has been taken by the appropriate governance body, it is recorded and any actions arising are undertaken.</p> <p>This also involves communication of the decision to the various agency stakeholders.</p>	Governance minutes
Implementation	<p>Implementation involves enacting the policy instruments and ensuring agencies understand their obligations.</p> <p>Implementation also includes ensuring agencies have access to the necessary supporting materials, such as tools.</p>	Tools

Lifecycle stage	Activities	Outputs
Evaluation	<p>Monitoring of the performance and impact of the QGEA artefacts is crucial to ensuring the effectiveness of the QGEA.</p> <p>Within the QGEA, targets documented in the requirements provide performance measures to judge the success or failure of the mechanisms and tools.</p> <p>The evaluation stage primarily involves annual agency reporting of compliance with Information Standards, QGEA policies, requirements and targets. In some cases it is extended to maturity assessments and surveys.</p> <p>The evaluation stage provides the necessary feedback loop on current strategies and their supporting mechanisms and tools. This feedback, when processed, may raise issues that require adjustments to these mechanisms and tools and the cycle begins again.</p>	Assessments and surveys

It is important to note the use of consultation with reference groups and relevant stakeholders throughout each stage of the cycle, not just in the formal consultation step.

Equally important is recognition that the creation of QGEA artefacts will not always follow the exact sequence of the cycle. However, experience has shown that artefacts produced using the processes within the cycle are more likely to produce sound directions which are well supported by all stakeholders.

Following the QGEA Cycle reinforces the logical relationships that should be maintained between the artefacts, as shown in Figure 7.

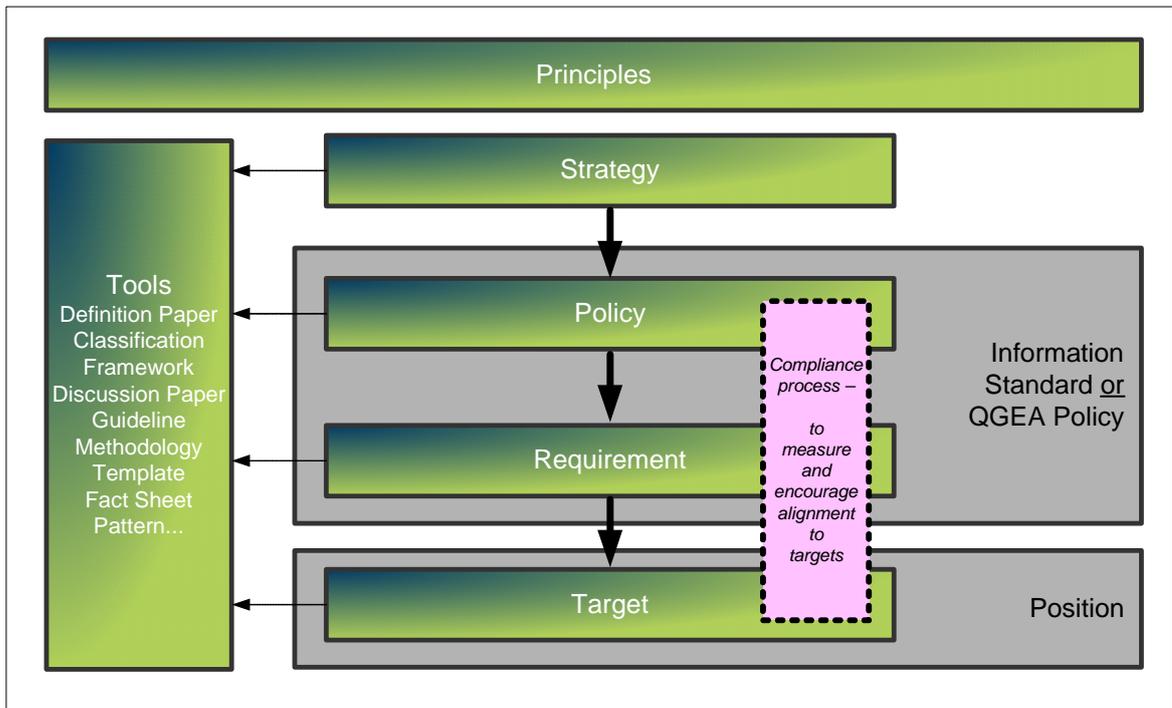


Figure 7: QGEA artefact links

While not every policy, requirement and target will result from a formal strategy, some form of strategic thinking and rationale should be developed and documented before they are created.

4.2 Responsibility for producing QGEA artefacts

The QGEA Cycle approach, with central agencies providing the core around which other groups provide further support and produce policy in their areas of domain expertise, also improves the effectiveness of the QGEA. For this reason, the management and population of the QGEA is not solely a centralised activity of the QGCIO or QGCTO.

This collaborative approach to information management and ICT policy is recognised by Gartner²⁰ as an appropriate model for ensuring EA is adopted across complex and diverse organisations such as government (see Figure 8: Gartner's concentric architecture team structure).

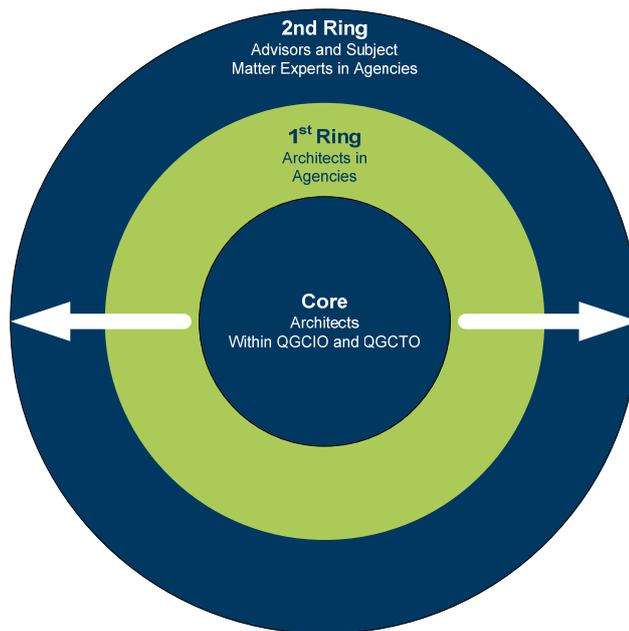


Figure 8: Gartner's concentric architecture team structure

While QGEA artefacts can be developed by any party that identifies a need and has the appropriate expertise, the QGCIO and QGCTO are responsible for guiding and managing the development of QGEA artefacts.

Table 3 shows the high level responsibility²¹ of the QGCIO and QGCTO with respect to coordination of the production of QGEA artefacts across QGEA layers and slices.

²⁰ Gartner, 11 April 2005, "Organizing tactics for enterprise architecture", Colleen M Young

²¹ In some cases, the responsibility for co-ordination is shared with one office taking a lead role in consultation, with the other indicated in brackets.

Table 3: QGEA context and artefact co-ordination responsibility²²

	Business	Information	Application	Technology	Information Security
Discussion papers	Any ²³				
Definition papers	QGCIO	QGCIO	QGCIO (QGCTO)	QGCTO (QGCIO)	QGCIO (QGCTO)
Classification frameworks					
Principles					
Strategies					
Information Standards					
QGEA Policies					
Positions					
Tools					QGCTO

Coordination of additional QGEA slices will be determined by QGCIO and QGCTO based on the intersection of the slice in a particular layer. For example, the authentication principles and policy to determine appropriate authentication approaches is an information security issue and would therefore fall to QGCIO to coordinate in consultation with the QGCTO. In contrast, principles and policies for implementation of smartcard technologies for authentication would be a technology layer security issue and coordinated by QGCTO in consultation with QGCIO.

In some cases, agencies are involved in information management and ICT activity where principles and strategies emanate from sources other than the Queensland Government. In these cases, agencies can apply the QGEA Framework internally to allow them to bring non-Queensland Government issued policy together with Queensland Government policy.²⁴ Alternatively the agencies involved could simply submit QGEA Framework compliant artefacts based on these external sources, for publication by the QGCIO and QGCTO.

Beyond responsibility for coordination, the QGCTO and QGCIO manage the QGEA Framework and QGEA artefacts under a formal agreement and jointly agree on a related program of work which includes an annual review of existing QGEA artefacts. Through this agreement, QGCIO and QGCTO resolve any ambiguities which may arise, such as the coordination of new layers or slices that may be added over time.

Further details of QGCIO’s and QGCTO’s other operational responsibilities in relation to management of the QGEA Framework and QGEA are given in Appendix C: Supporting the QGEA.

²² Other policy instruments may be published under alternative policy frameworks outside of the QGEA.

²³ “Any” implies that any agency in the Queensland Government can develop a discussion paper, but final distribution and consultation will involve assistance and advice from QGCIO and QGCTO.

²⁴ For information on agencies’ internal uses of the QGEA Framework, refer to Section 4.5 Agency internal use of the QGEA Framework.

4.3 Governance of the QGEA Framework and artefacts

Governance provides a means to manage additions and amendments to both the structure of the QGEA Framework and QGEA artefacts.²⁵ The QGEA Framework and QGEA artefacts are governed using the Queensland Government ICT Governance Framework as shown in Figure 9.

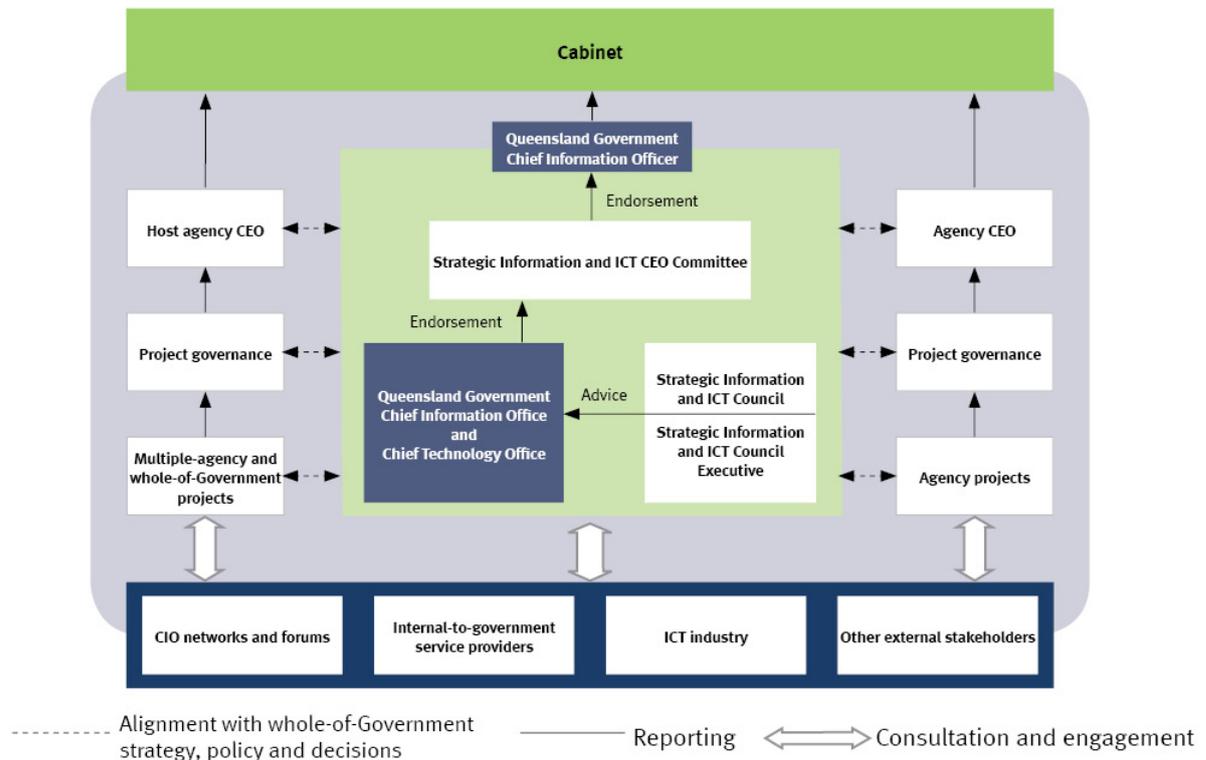


Figure 9: Major Queensland Government ICT governance bodies

There are four bodies that have responsibilities in relation to the QGEA as follows:

- QGCIO and QGCTO – responsible for the day-to-day operations and management of the population of the QGEA and for coordinating amendments to the QGEA Framework itself;
- QGEA Reference Group – responsible for providing an architecture assurance role through input and impact analysis on proposed amendments or additions to the QGEA Framework or QGEA artefacts. The QGEA Reference Group is an advisory body to the Strategic Information (SI) & ICT Council Executive, QGCIO and QGCTO;
- Executive Director, Queensland Government Chief Information Office – responsible for providing a whole-of-Government assurance role through input and impact analysis on proposed amendments or additions to the QGEA Framework or QGEA artefacts. The SI & ICT Council will be used in an advisory capacity as required.
- The Queensland Government Chief Information Officer (Director-General of the Department of Public Works) – responsible for approving mandates, amendments or additions to the QGEA Framework or QGEA artefacts. The SI & ICT CEO Committee will be used in an advisory capacity as required.

It is important to note that the level of consultation, assurance, endorsement and the approval body depends on both the QGEA artefact type and its potential impact on agencies or the QGEA Framework. Judging the potential impact early in the consultation process to aid in this decision-making process is a function of the QGEA Reference Group.

²⁵ These arrangements reflect the 2006 recommendations made by the *Service Delivery and Performance Commission report into ICT governance in the Queensland Government* and November 2008 Executive Government decision.

For example, discussion papers require very little governance (apart from the use of a standard process, templates and some level of quality assurance) as they are not setting any future direction or making policy statements. However, an Information Standard carries a mandate and must be complied with. As a result, Information Standards require much stronger governance and more extensive consultation.

Due to these varying levels of impact, the QGEA artefact governance arrangements need only be invoked up to a level that reflects the potential impact that the artefact will have. Unnecessary invocation of the governance process can reduce the agility and responsiveness of the QGEA.

For this reason, the submission of QGEA artefacts to the SI & ICT CEO Committee is restricted to artefact types that require the approval of the Queensland Government Chief Information Officer (as shown in Table 4 below) or that are considered by the executive management of QGCIO or QGCTO to contain a high impact to the Queensland Government.

High impact amendments or artefacts are defined as any new or modified artefact that either:

- according to the QGEA framework meta model, is a mechanism that must be “aligned with”, that is, it carries a mandate
- requires significant implementation effort by most agencies in terms of financial investment, staff and the number of agencies impacted by the change. This is determined through consultation
- involves a major structural change to the QGEA Framework itself.

In some cases, approval authority may be delegated to the Executive Director, Queensland Government Chief Information Office.

Table 4 shows the overall responsibilities for the QGEA Framework and key QGEA artefact types.

Table 4: Operational and governance roles for the QGEA

Key QGEA artefact types	Operational role	Governance role	
		Business and Information layers, plus Information Security slice	Application and Technology layers
QGEA Framework (abstract and meta model)	QGCIO	Queensland Government Chief Information Officer (DG DPW) will use the SI&ICT CEO Committee in an advisory capacity as required.	
Definition papers	QGCIO & QGCTO	Queensland Government Chief Information Officer (DG DPW)	QGCTO
Classifications frameworks	QGCIO & QGCTO	Queensland Government Chief Information Officer (DG DPW) will use the SI&ICT CEO Committee in an advisory capacity as required.	
Portfolios (resource profiles and initiative profiles)	For whole-of-Government architecture: QGCIO (for the Business and Information layers) or QGCTO (for Applications and Technology layers). For multi-agency or whole-of-Government initiatives: the host agency with advice from the QGCIO and QGCTO.		
Mechanisms (principles, strategies, Information standards, QGEA policies and positions)	QGCIO sets the minimum requirements and process for developing mechanisms and tools created by other projects, bodies or agencies but held in the QGEA.		
Tools (methods, guidelines etc)		QGCIO	QGCTO

QGEA artefacts are primarily intended for internal-to-Government use, but once approved, most artefacts should be released to the public. This ensures that the majority of Queensland Government’s ICT policy directions are made available to the ICT industry and other interested non-government parties. On this basis, QGEA artefacts will have the following security classifications in accordance with the Queensland Government Information Security Classification Framework (QGISCF):

- During development of a QGEA artefact, the target audience is considered to be Queensland Government staff and the QGEA artefact will have a security classification of UNCLASSIFIED. UNCLASSIFIED information may have an additional classification of INTERNAL-USE-ONLY, AGENCY-INTERNAL-USE-ONLY or GOVERNMENT-INTERNAL-USE-ONLY.
- Once a QGEA artefact is approved, the published version should have a security classification

of PUBLIC, according to the QGISCF, unless otherwise directed by the approving authority.

4.4 Agency compliance with the QGEA artefacts

Compliance helps to ensure that change driven by the QGEA occurs within agencies.

There can be significant legal consequences for the Queensland Government from third parties where an agency fails to implement and adhere to mandatory elements of the QGEA. For example, previous Crown Law advice provided to the QGCIO has indicated that an agency could be liable to a third party for claims in contract, tort (negligence) or even under the trade practices legislation if they fail to properly implement Information Standards.

4.4.1 Understanding compliance

Agencies are required to be compliant with the principles, policies, requirements and targets within the QGEA through legislative provisions, including the *Financial Management Standard 1997* and the *Public Records Act 2002*. These legislative provisions were further supported by administrative arrangements approved by Executive Government in November 2008.

An agency is considered to be fully compliant with QGEA artefacts when it implements and maintains the necessary administrative controls to meet QGEA principles, policies, requirements (in the form of Information Standards and QGEA policies) and targets (in the form of QGEA positions).

Ensuring that the policy or requirement of the QGEA is adopted is crucial since simply achieving a target is not sufficient to maintain the architecture over time. Agencies are required to incorporate the directions of the QGEA artefacts into “to-be” architectures in the form of their own strategies, policies and requirements to ensure that they continue to meet the position in future after the deadline for alignment has passed. Without compliance at both the policy and position level, there is an inherent risk that future initiatives inadvertently diverge from the target through ignorance of the target.

Understanding policy and requirement compliance

Compliance with a policy or requirement is defined as adoption within the agency’s own administrative regime. That is, the agency’s “to-be” or target architecture is consistent with the policy and requirements specified for the particular QGEA domains of interest.

Understanding position and target compliance

Agencies are also required to comply with the positions specified within the QGEA through alignment with defined targets, as specified within sections 22 and 56 of the *Financial Management Standard*. Targets are the specific measures contained within QGEA positions. These measures themselves comprised the deadlines to achieve or implement an agreed level of consistency with all, or part, of a direction across one or more domains, as stated in the associated policies and requirements.

A target for one or more domains may be specified in a variety of ways, including but not limited to a particular product to be implemented; one or more standards to be followed; a purchasing arrangement to be used; or a service provision arrangement to be adopted.

For example, if the QGEA policy on network cabling included the following: “Agencies maintain a register of agency sites and the standard of cabling at each site”, then the position would contain targets such as “50% of agency sites represented in the site register by 30 June 2006” and “100% of agency sites are represented in the site register by 30 June 2007”.

Compliance with a target is defined as having achieved, or having the stated intention to achieve, the defined level of consistency by the specified deadline for all of the targets within a position.

Table 5 illustrates compliance with a hypothetical target within the “E-mail and Calendaring”²⁶

²⁶ This domain is for illustrative purposes only. Agencies should refer to the published classification frameworks for actual domains currently defined for the Queensland Government.

domain within the technology layer of the QGEA.

Table 5: Example QGEA target compliance

Whole-of-Government architecture is defined as Microsoft Exchange 5.5 Service Pack 4 with a target that all agencies will adopt this by June 2008.		
Current agency architecture	Agency initiatives	Compliant?
Microsoft Exchange 5.5 SP4	None	Yes
Microsoft Exchange 5.5 SP3	Initiative to upgrade to 5.5 SP4 by June 2008	Yes
Microsoft Exchange 5.5 SP3	Initiative to upgrade to 5.5 SP4 by June 2010	No
Lotus Notes R6	Initiative to upgrade to Lotus Notes R8 by 2008	No
Lotus Notes R6	Initiative to migrate to Microsoft Exchange 5.5 SP4 by June 2008	Yes

4.4.2 Demonstrating compliance

Agency compliance with the QGEA is demonstrated by meeting criteria relating to the implementation of QGEA policies, requirements and targets, necessitating that agencies can show evidence of implementation action.

Only when an agency can demonstrate compliance at both the policy level and individual position targets in a particular area of the QGEA is the agency considered to be fully compliant.

Demonstrating policy and requirement compliance

The compliance process begins when a policy or requirement is issued in the form of an Information Standard or QGEA policy. Agencies are required to undertake a risk assessment of the impact of the policy statement and associated requirements within six months from the date of approval of the associated Information Standard or QGEA policy²⁷.

The purpose of the risk assessment is to determine the exposure of the agency to the issues, hazards and liabilities that the policy or requirement is attempting to address. The risk assessment determines what the high risk areas are that should be the focus of agency implementation activity. In the case of Information Standards only, the risk assessment also provides the basis for scoping the timeframe for agency implementation.

An agency's adoption of a particular policy or requirement is then determined using the criteria outlined in Table 6.

²⁷ The six-month timeframe is the default timeframe used for Information Standards. However, in rare and exceptional circumstances, the timeframe for the risk assessment may be extended. Any such extensions are documented in the Information Standard itself at the time of publication.

Table 6: Policy and requirement compliance states

Level	Assessment criteria
Adopted (Fully compliant)	<p>All aspects of the Information Standard or QGEA policy have been incorporated into the agency's "to-be" architecture.</p> <p>Incorporation into the "to-be" architecture will vary from agency to agency, but could be:</p> <ul style="list-style-type: none"> formal noting of the Information Standard or QGEA policy by the agency's Information Steering Committee including the policy in the agency's internal "to-be" architecture documents referencing the QGEA policy in the agency's internal "to-be" architecture documents including the policy in strategy documents or project gate keeping processes.
Adopted (Risk exempt) - for Information Standards only	<p>The agency has:</p> <ul style="list-style-type: none"> completed the risk assessment for an Information Standard <i>AND</i> all high risk aspects of the Information Standard have been implemented <i>AND</i> plans are in place to address all other aspects of the Information Standard.
Not adopted (Non-compliant)	<p>The agency has:</p> <ul style="list-style-type: none"> not completed a risk assessment (for an Information Standard) <i>OR</i> not implemented the high risk aspects of a given Information Standard <i>OR</i> chosen to adopt a different policy or requirements than those outlined in the Information Standard or QGEA policy <i>OR</i> not developed plans to address the policy and requirements contained within a given Information Standard or QGEA policy.

Demonstrating target compliance

An agency's alignment with a given target within a QGEA position paper is determined using the criteria outlined in Table 7.

Table 7: Position and target compliance states

Level	Assessment criteria
Achieved	<p>Has your agency already met the targets in a given position? If so, then the implementation target has been achieved as the agency already has the target architecture in place.</p> <p>Position targets have been met and are reflected in the agency architecture.</p>
On track	Existing or future ICT initiatives will result in the target being achieved by the specified deadline.
Not on track	Existing or future ICT initiatives will result in the target being achieved later than the specified deadline.
Unplanned	The agency has not undertaken any planning for initiatives that will result in the target being achieved.

Demonstrating full QGEA compliance

It is important to understand that demonstrating full QGEA compliance requires that an agency has achieved compliance with both the policy and its associated targets (if applicable).

The compliance “formula” for the purposes of reporting alignment to the QGCIO is that the agency has adopted the policy and requirements of a given QGEA policy or Information Standard AND

- achieved the targets associated with any QGEA position supporting the policy and requirements OR
- is on track to implement the initiatives by the deadline specified by the targets or agreed in an agency specific exception as outlined below.

Where an agency does not meet this full set of requirements outlined²⁸ they are considered to be non-compliant with the QGEA artefacts in question.

4.4.3 Agency exceptions

Within the *Financial Management Standard* there is no concept of exceptions to either the QGEA Framework itself or any of the QGEA artefacts, including Information Standards. However, in November 2008, Executive Government approved that agencies seeking exception from mandated ICT policy arrangements are able to make a submission for exceptions to the Queensland Government Chief Information Officer.

At an operational level, submissions for exceptions can only be made for the targets contained within a given QGEA position paper or the implementation timelines within an Information Standard. For example, a target may not be applicable to a particular agency context, or a current agency resource, capability or delivery constraints means the deadline for alignment cannot currently be met.

As a result, to gain an exception, an agency must take a risk assessment of any targets they believe cannot or will not be met. Specifically, when applying for an exception, agencies must:

- provide evidence of the consequence and likelihood of impact both to the agency and whole-of-Government directions from the non-compliance to a particular target
- provide details of any remedial action proposed to address any inconsistencies with agency and whole-of-Government directions arising from the exception being approved, or alternatively submit a business case which demonstrates how the Government will benefit from granting the exemption
- nominate a timeframe in which the agency expects to achieve the relevant target or agree to re-assess the business case supporting the exception.

Unless otherwise specified within the QGEA position paper, target exceptions require the approval of the Queensland Government Chief Information Officer (Director-General of the Department of Public Works) under advisement of the QGCIO in consultation with the SI & ICT Council Executive.

Once granted, exceptions may be subject to further reporting and monitoring, including escalation.

Matters relating to exceptions that are not able to be resolved at the Chief Executive Officer level are to be referred to Executive Government for a decision.

4.4.4 Agency reporting

At the end of each financial year, agencies are asked to report their self-assessed alignment with the QGEA to the QGCIO.

²⁸ The compliance formula becomes Adopted AND (Achieved OR On track).

The current expected QGEA compliance level is 90%²⁹. That is, agencies are expected to be compliant with 90% of the QGEA policies, requirements and targets³⁰. This includes the risk assessment and implementation targets outlined within any of the current Information Standards.

4.5 Agency internal use of the QGEA Framework

As a federated architecture, not all of the domains or artefacts that an agency may require to effectively manage their information and ICT portfolio will be present within the QGEA.

The amount of detail that is specified at the whole-of-Government level within the QGEA varies depending on the following dimensions:

- the level of commonality in a given layer, slice or domain across agencies
- the depth of available guidance for new or emerging practices
- the demand for monitoring and reporting from the Government.

Where QGEA artefacts of a particular type do not exist for domains within a layer or slice that are considered important to agencies, then agencies should produce complementary EA artefacts for their own internal use, as shown in Figure 10.

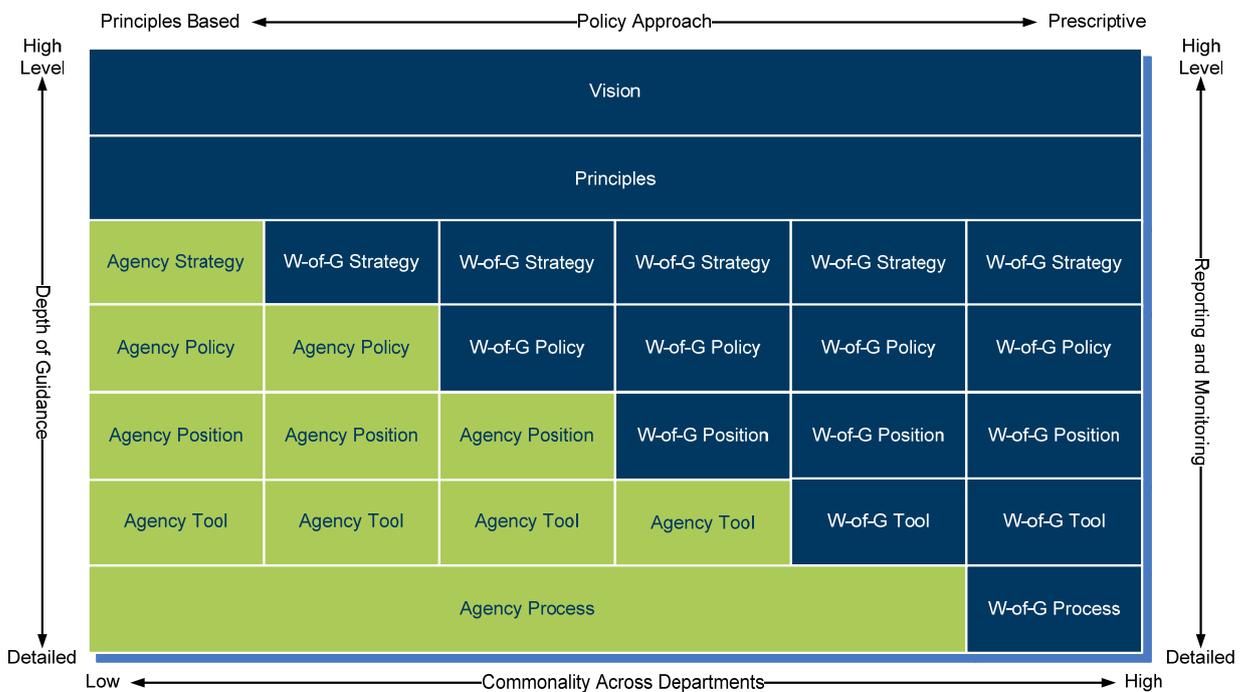


Figure 10: Agency application of the QGEA Framework

Using the QGEA Framework as the basis for an agency’s internal EA approach and production of QGEA compliant artefacts increases the opportunity to promote agency artefacts up to a whole-of-Government level at a later date.

Under this approach, the agency EA grows up towards the whole-of-Government artefacts at the same time as the whole-of-Government architecture expands downwards.

A common example will be cases where approved QGEA policy provides agencies with a limited set of options from which an internal agency choice is required. For example, a QGEA policy is issued that requires agencies to use one of three possible technology products. Associated with this

²⁹ This level was defined in the *Smart Directions Statement 2004* for achievement in June 2007 and has been maintained since.

³⁰ All positions are weighted equally and no priority is given to one target over another.

policy is a target that states that all new implementations after a certain date must comply with the policy. An agency wishing to adopt the QGEA Framework would respond with its own EA policy that refines the QGEA policy and specifies which of the three potential products the agency has chosen³¹.

There will also be situations in which the whole-of-Government artefacts do not provide the required level of prescription in relation to adoption timelines that an agency itself may require based on analysis of its own business needs. For example, a QGEA policy may be issued without any associated position and targets. As a result, the agency may wish to specify its own adoption targets. An agency who has adopted the QGEA Framework can publish its own internal EA position and associated targets using the QGEA Framework format and linked to the whole-of-Government QGEA policy.

4.6 Combining the QGEA Framework with other EA frameworks

The use of the QGEA Framework as the basis for agency EA programs to drive information management and ICT outcomes in the public sector context does not preclude the use of other frameworks. The QGEA Framework can and should be complemented by other frameworks that support the application of EA discipline across an agency.

For example, the Zachman Framework can assist agencies in ensuring completeness of the models that represent the current resource profiles. Frameworks such as the Reference Model of Open Distributed Processing (RM-ODP) and Object Management Group's Business Motivation Model (OMG BMM) can form the basis of meta models for EA repositories. The Open Group Architecture Framework (TOGAF) and the techniques within the associated Architecture Development Method can be used to help develop agency-specific QGEA artefacts in combination with the Queensland Government's ICT Planning Methodology.

³¹ The selection of the agency specific product would be based on strategies or analysis of the agency's own resource and initiative portfolios generated through traditional EA techniques and ICT planning activity.

Appendix A History behind the QGEA

The Queensland Government has a long history of using enterprise architecture as a means to effect ICT policy. Table 8 provides a history behind the QGEA in the form of major milestones from the early 1990s to 2008.

Table 8: Major events in the history of the QGEA

Milestone	Event description
Circa 1990	The Queensland Government introduces information management and ICT governance arrangements in the form of the Information Planning Board and associated Information Standards arrangements.
1997	<p>The <i>Financial Management Standard 1997</i> is passed by the Queensland Parliament including provisions requiring that agencies “should have regard to the Information Standards”.</p> <p>Management of Information Standards is assigned to the Department of Communication and Information, Local Government and Planning.</p>
1999	Development of the Government Information Architecture (GIA) commenced within the Department of Communication and Information, Local Government and Planning as part of the department’s “best practice” advice role in relation to information management and ICT.
2001	<p>The management of Information Standards and the GIA is assigned to the Department of Innovation and Information Economy.</p> <p>The completed GIA is presented to the Communication and Information Coordination Committee (CICC), the then-governing body for ICT-related policy.</p> <p>The <i>Financial Management Standard</i> is amended stating that agencies “must ensure their ICT planning is consistent with the mandatory principles of the Information Standards”. The concept of implementing the mandatory principles based on agency risk assessments was introduced.</p>
2004	<p>The <i>Smart Directions Statement 2004</i> (approved by Executive Government October 2004) included action 1.3 stating:</p> <p><i>“Government Information Architecture (GIA) further developed.</i></p> <ul style="list-style-type: none"> • <i>GIA further developed through contributions and support from all agencies - Ongoing</i> • <i>Progressive agency alignment (>60%) – mid 2006</i> • <i>Substantial agency alignment (>90%) – mid 2007”</i> <p>The management of Information Standards and the GIA is assigned to the Office of Government of ICT within the Department of Public Works.</p> <p>CICC was replaced by the Strategic Information (SI) & ICT Board.</p>

Milestone	Event description
2005	<p>The Government Enterprise Architecture (GEA) Framework was developed by the Office of Government ICT.</p> <p>The completed framework was submitted to, and noted by, the SI & ICT Board on 30 March 2005 before being released for consultation with agencies.</p> <p>In June 2005, the <i>Financial Management Standard</i> is amended to include provisions in relation to the GEA, specifically:</p> <p>Division 8 Section 56</p> <p><i>In developing and implementing the systems, each accountable officer and statutory body must—</i></p> <p>(a) <i>apply the mandatory principles of the information standards; and</i></p> <p>(b) <i>ensure the systems align with targets stated in the GEA;</i></p> <p>Division 3 sections 22 and 23 (in relation to Strategic planning for ICT resources).</p> <p>(2) <i>The plan must—</i></p> <p>(a) <i>be consistent with the targets stated in the GEA; and</i></p> <p>(b) <i>demonstrate how the agency aligns with the targets stated in the GEA, including, for example, by—</i></p> <p>(i) <i>meeting a target within the period stated in the GEA for the target; or</i></p> <p>(ii) <i>qualifying for an exception for a target; and</i></p> <p>(c) <i>be consistent with the mandatory principles of each information standard; and</i></p> <p>(d) <i>cover a timeframe of at least 4 years.</i></p> <p>(3) <i>If an information standard states a period in which a mandatory principle of the standard must be applied, the plan must provide for applying the principle—</i></p> <p>(a) <i>in the period; or</i></p> <p>(b) <i>if the results of a risk assessment indicate the principle is to be applied in another period—in the other period.</i></p> <p>In October 2005 the first five GEA position papers containing specified GEA targets were endorsed by the SI & ICT Board and issued to agencies. The SI & ICT Board requested that a GEA exception process be created.</p>
2006	<p>In February 2006, a GEA exception process was endorsed by the SI & ICT Board.</p> <p>In mid-2006 the first GEA alignment report was completed by all agencies.</p> <p>The former Service Delivery Performance Commission's <i>Review of ICT governance in the Queensland Government</i> recommended the following:</p> <p><i>"The Director-General of the Department of Public Works establish a new office called the Queensland Government Chief Information Office (QGCI) by the end of November 2006 (Recommendation 2, 36). The role of the QGCI will include:</i></p> <p>(a) <i>Portfolio Analysis – leading the Government's portfolio analysis of plans and other processes for active management of the Business and Information layers of the Government's enterprise architecture.</i></p> <p>(b) <i>Government Enterprise Architecture and Information Strategy – establishing, maintaining and promoting the benefits of decision making using the Government Enterprise Architecture. ..."</i></p> <p>The same report also created the Queensland Government Chief Technology Office.</p> <p>As part of the changes arising from the report, the management of the Information Standards</p>

Milestone	Event description
	<p>was assigned to the Queensland Government Chief Information Office. The management of the GEA is assigned jointly to the Queensland Government Chief Information Office and the Queensland Government Chief Technology Office.</p>
2007	<p>A Memorandum of Understanding (MOU) between the Queensland Government Chief Information Office, Queensland Government Chief Technology Office and Queensland Government Chief Procurement Office was developed and approved. The MOU addressed the agreed operational responsibility for key aspects of the ICT policy and the GEA.</p>
2008	<p>QGEA Framework 2.0 was developed and released to agencies for consultation. Adoption of the QGEA in preference to the GEA to better reflect it as a Queensland Government developed framework.</p> <p>Executive Government approved the assignment of the Director-General of the Department of Public Works to the role of Queensland Government Chief Information Officer and approved that the QGEA the designated framework for the issue of mandated arrangements relating to the governance of ICT across the Queensland Government.</p> <p>This decision provided clarification and Executive Government-level approval for administrative arrangements previously implemented by the QGCIO under direction of the various governance bodies, including the SI & ICT CEO Committee.</p> <p>When combined with the provisions of the <i>Financial Management Standard</i>, Executive Government's decision to embrace the QGEA represents a significant endorsement of the use of the EA discipline to support information management and ICT-enabled business outcomes in the Queensland Government.</p>

Appendix B QGEA deliverable and artefact type definitions

Table 9 on page 34 outlines the definitions associated with the deliverables and artefact types of the QGEA Framework. Each definition includes the:

- Deliverable or artefact type name (and, if applicable, an indication of the containing composite artefact type)
- meaning, which explains what the deliverable or artefact type is or contains
- purpose or the reason for the existence of the deliverable or artefact type
- examples of an existing instance or content of the particular deliverable or artefact type
- alternative names or previous names by which the deliverable or artefact type is known
- life span of the deliverable or artefact type before it is reviewed and either updated or retired (revoked)

Table 9: QGEA deliverable and artefact type definitions

QGEA deliverable or artefact type	Meaning	Purpose	Example	Also known as / previously known as	Review cycle	Abstract type
Assessment	Provides an appraisal or measurement of a particular context of the enterprise as input into decision making processes.	<p>Assessments provide the measure by which to establish additional information for the purpose of analysis not available through existing profiling of resources or initiatives.</p> <p>Assessments can also be used to either:</p> <ul style="list-style-type: none"> Evaluate or judge the effectiveness of an Information Standard, QGEA policy or position. Measure an agency's achievement of compliance with a particular Information Standard, QGEA policy or position. 	Network management maturity assessment, Program and project management maturity assessment	Maturity assessment Evaluation Survey	As required	Tool
Classification framework	Provides the published categorisation schemes with associated definitions used to provide context to the QGEA and the information held within it.	<p>Classification Frameworks support the organisation of major contextual elements of the QGEA as well as organisation of EA information and artefacts.</p> <p>The QGEA Classification Frameworks are used:</p> <ul style="list-style-type: none"> to navigate the QGEA to identify mechanisms and tools related to a particular class (layer, slice or domain) as a means of collecting resources and initiatives into portfolios for the purpose of analysis as a means to identify commonality between resources and initiatives for the purpose of portfolio analysis. 	Information Classification Framework, Application Classification Framework, Queensland Government Information Security Classification.	Classification scheme Reference model Topology Portfolio framework	Annually	Tool

QGEA deliverable or artefact type	Meaning	Purpose	Example	Also known as / previously known as	Review cycle	Abstract type
Definition paper	Provides background and an agreed whole-of-Government definition for a given topic or concept – including elements of the QGEA itself.	Aims to provide a standard meaning for terms and concepts to ensure consistent use and common understanding across the Queensland Government (formerly called 'GEA White Paper'). These terms or concepts within definition papers form the basis for aspects of the Queensland Government's vocabulary and in particular the QGCIO maintained glossary.	Information architecture and its abstract model that contains the agreed Queensland Government terminology associated with this area are described in a definition paper.	White paper	2 years	Tool
Discussion paper	Raises issues on a topic to elicit further input from agencies and/or industry.	QGEA Discussion Papers are used to promote early thinking and to generate feedback from across the sector. They may lead to the development of a strategy, policy or requirement.	Discussion paper on information management in the Queensland Government	N/A	Never	Tool
Fact sheet	Provides a brief summary of the key points of interest or concern surrounding a QGEA artefact type, their context or content.	Fact Sheets are a brief resource document offered to agencies to help them quickly check basic facts without having to refer in the first instance to more extensive materials available. The provision of fact sheets recognises that the time available to review and comprehend QGEA content is diminishing while at the same time the need for fast and accurate decision making has increased.	Information assets and their classification fact sheet	Reference sheet Brief	As required	Tool

QGEA deliverable or artefact type	Meaning	Purpose	Example	Also known as / previously known as	Review cycle	Abstract type
Principle	Principles represent the core beliefs and values of the Queensland Government in relation to the management of information and underpinning technologies. They influence decisions made about the portfolio ("current state") and agency processes ("behaviours").	<p>At the highest level Principles provide guidance and set expectations from central government to individual agencies.</p> <p>They influence decisions made by agencies about the current portfolios and agency processes ("behaviours") in the absence of more prescriptive policy or requirements. Principles change infrequently and represent widely accepted truths or axioms about the enterprise's approach to various resources and initiatives.</p> <p>Principles provide a link between the strategic direction of current Government priorities and the QGEA thereby providing agencies with a number of reference points to guide policy development and strategic planning.</p>	A principle for management of government information is that "Information held by government is accurate, relevant, timely and widely accessible".	N/A	4 years	Mechanism
Guideline	Provides agencies with supporting material, for example, advice, technique, or checklists. They provide guidance.	Guidelines provide information and support to aid agencies. They may state whole-of-Government preferences, where no policy or requirement formally exists. They may also be published to assist agencies in aligning with a policy, requirement and target or in adopting or executing a methodology.	Reporting outsourced services and cross-servicing arrangements guideline	Technique	As required	Tool

QGEA deliverable or artefact type	Meaning	Purpose	Example	Also known as / previously known as	Review cycle	Abstract type
Initiative profile	Establishes current details of one or more initiatives (business changes) including the service, process, information, application and technology changes they will bring about (the solution architecture of the initiatives).	<p>Initiative profiles provide a structured and consistent description of the change activities occurring across the enterprise. Understanding this activity allows the currently targeted future state of the resource portfolios to be understood. The initiative profile forms input into analysis processes that include:</p> <ul style="list-style-type: none"> • evaluation of the initiatives ability to improve alignment of resources to outcomes or maintain the status quo • confirming that initiatives undertaken matched the approvals provided by Government • Prioritisation to ensure an optimised set of initiatives is undertaken given limited resources of time, people and money. <p>Initiative profiles are often collected into portfolios and analysed as a group.</p>	<p>Initiative register within ICT Planning</p> <p>Short form and long form Budget submissions</p>	Domain profile	Annually	Profile
Methodology	Documents the processes, techniques, roles and output that describe the means for execution of a standardised planning, management or control practice within the Queensland Government.	Methods are intended to enable the repeatability of common practices. Methods also aid the Queensland Government and its agencies in the consistent transition from a current state to a new or future state or in some cases the maintenance of efficiency and effectiveness of the current state.	Queensland Government Project Management Methodology, Queensland Government ICT Planning Methodology	Process Method	Annually	Tool

QGEA deliverable or artefact type	Meaning	Purpose	Example	Also known as / previously known as	Review cycle	Abstract type
Pattern	Provides a generic description of key elements of a problem and potential solutions in a given area.	Patterns are discovered through the observation of previous solutions to problems. In this way patterns capture knowledge from previous experience and present an accepted and well tested solution that addresses the forces or constraints that exist in government. As the name suggests a pattern is a common basis for further design, but one which can be realised by individual agencies in their portfolios over time.	Integration patterns	N/A	As required	Tool
Policy (contained within an Information Standard or QGEA policy)	Policies are clear and specific statements of direction based on general principles, to support achievement of long term strategies or as a response to issues.	Policies set out a government plan or course of action intended to influence and determine decisions, actions, and other matters relative to a particular purpose. A policy, like legislation, contains a set of rules expressed as an obligation, an authorisation, permission or a prohibition. Policies are documented as part of either an Information Standard or a QGEA policy.	The Queensland Government will use a consistent project management methodology for whole-of-Government and cross agency projects.	N/A	Annually	Mechanism

QGEA deliverable or artefact type	Meaning	Purpose	Example	Also known as / previously known as	Review cycle	Abstract type
Target (contained within a QGEA position paper)	Performance or objective measures that indicate realisation of detailed goal statements (positions) relating to either policies or requirements.	<p>Targets aid in the migration towards a future state or maintenance of the current state for a particular type of asset or process by measuring key indicators that provide evidence that a policy or requirement is being effective. If a policy and requirement is effective then the likelihood of a policy outcome being realised increases and along with it the strategic changes to which these policies relate.</p> <p>Targets are documented in the form of QGEA position papers.</p>	100% of Office suites to be standardised at either Microsoft Office XP or Microsoft Office 2003 by 31 December 2007.	Domain target	Annually	Mechanism
Resource profile	Represents the current details of one or more resources (such as business services, business process, information assets, applications or technologies) including their domain classifications as well as relationships between the resources.	<p>A resource profile provides a structured and consistent description of the current state of one or more aspects of the enterprise.</p> <p>The current state of an enterprise, in the form of its various resources, forms input into analysis processes that include:</p> <ul style="list-style-type: none"> • evaluation of the alignment of the resources to current Government directions • identification of opportunities to reduce cost • management of risk over the life of the resources • leveraging existing resources further future Government outcomes. <p>Resource profiles are often collected into portfolios and analysed as a group.</p>	The Business Process Register within ICT Planning, contents of a configuration management database	Domain profile	Annually	Profile

QGEA deliverable or artefact type	Meaning	Purpose	Example	Also known as / previously known as	Review cycle	Abstract type
Requirement (contained within an Information Standard or QGEA policy)	Documents the mandatory, recommended and advisable technical and non-technical specifications necessary to ensure that a resource or process will consistently do the job it is intended to do.	<p>Requirements provide the detailed constraints and compliance requirements for a given policy. In doing so they provide agencies with an indication of the level of discretion available when making decisions in relation to resources or initiatives as well as processes that they must follow.</p> <p>Requirements are either internally defined or may reference external policies, standards and methods.</p> <p>Requirements are documented as part of either an Information Standard or a QGEA Policy.</p>	Agencies must use the Queensland Government Project Management Methodology for all whole-of-Government and cross-agency ICT-enabled projects or a methodology that has been accredited by the QGCIO.	N/A	Annually	Mechanism

QGEA deliverable or artefact type	Meaning	Purpose	Example	Also known as / previously known as	Review cycle	Abstract type
Strategy	A strategy is a short high-level document intended to gain in principle agreement of senior executives to a general course of action to achieve an agreed desired future state or goal.	<p>Strategies define a long term direction to be taken by the Queensland Government.</p> <p>Strategies establish a baseline of the current environment; identify the drivers that are leading to the need for change to a particular environment; articulate the future desired environment; and propose a series of actions to realise that future desired state.</p> <p>Strategies are supported by a vision statement which outlines in simple terms the desired future state. Strategies identify actions which would lead from the current state to the future state and identify the benefits which will arise from the achievement of the future state. They may also outline the cost, risk and benefit implications of a particular government direction.</p> <p>Approval of a Strategy indicates in principle agreement to take a particular direction and develop the appropriate supporting mechanisms to realise the outcomes articulated by the strategy itself.</p>	<p>ICT Utility Strategy describes the desired end state and principles for managed email services.</p> <p>The Technology Consolidation Strategy developed as part of the Technology Consolidation Business Case outlines the high level principles for consolidation.</p>	Strategic direction	2 Years	Mechanism

QGEA deliverable or artefact type	Meaning	Purpose	Example	Also known as / previously known as	Review cycle	Abstract type
Template	Provides an agreed structure for the presentation or capture of information.	Templates help to ensure consistency in the production of deliverables. By using templates agencies can lower the barriers to adoption of new processes. Agencies can also innovate by using the templates as a basis for customised delivery of information.	Information resources strategic plan template provided as part of the Queensland Government ICT Planning Methodology.	Pro-forma	As Required	Tool

Appendix C Supporting the QGEA

The QGCIO is the single point of initial contact for agencies regarding questions or issues concerning the QGEA Framework and QGEA artefacts. However, in accordance with the recommendations of the Service Delivery and Performance Commission's (SDPC) *Review of ICT governance within the Queensland Government*, the QGCIO and QGCTO are required to support the QGEA and ensure it operates efficiently.

If an agency contacts the QGCIO, referrals may be required to the QGCTO in key areas of responsibility for each of these related activities. This is outlined in Table 10.

Table 10: Summary of QGEA support responsibilities

	Supporting activity	Example activities	Responsibility
QGEA Framework development	<p>Continual development and maintenance of the QGEA Framework.</p> <p>The framework defines the process and rules for Queensland Government enterprise architecture. The framework also includes the rules for the governance, format, content types, quality assurance and publication of QGEA artefacts.</p> <p>Development and maintenance of the QGEA Framework informs and defines many of the allied activities defined below.</p>	<p>Developing templates for position papers.</p> <p>Defining the notation to be used for information models.</p>	QGCIO
QGEA content development	<p>Creating QGEA artefacts for inclusion in the QGEA.</p> <p>Due to the federated nature of the QGEA, artefacts can be developed by any party that identifies a need and has the appropriate expertise; QGEA artefact production is not the sole responsibility of the QGCIO or QGCTO. However, the QGCIO and QGCTO are responsible for guiding and managing the development of QGEA artefacts.</p>	<p>QGEA policies have been jointly developed by the QGCIO and agencies, such as the Information Standard on Privacy for Queensland Health.</p>	Various

	Supporting activity	Example activities	Responsibility
QGEA analysis and reporting	<p>Using the QGEA, analysing information gathered from agencies to provide insight into and information on or for:</p> <ul style="list-style-type: none"> agency information management and ICT activities whole-of-Government initiatives the Cabinet Budget Review Committee (CBRC) process the Cabinet process optimising ICT investment to support service delivery. 	<p>Production of the annual ICT portfolio analysis report for the SI & ICT CEO Committee.</p> <p>Analysis of agency forward capital expenditure estimates for ICT.</p> <p>Determining cost benchmarks for particular application and technology domains across the Queensland Government.</p>	QGCIO and QGCTO
QGEA support	Assisting agencies involved in developing QGEA artefacts or who are undertaking QGEA compliance activities to maximise their ability to participate in QGEA processes.	Advice and support to complete reporting activities such as QGEA alignment assessments.	QGCIO and QGCTO (Depends on domain)
QGEA repository hosting	Provisioning of repositories to manage QGEA information collected by the QGCIO and QGCTO, such as agency baseline data. Currently used repository tools include System Architect and Clarity.	Ensuring that SLAs are in place between QGCIO/ QGCTO and CITEC for the provision of Clarity development, test and production environments.	QGCTO
QGEA repository management	Defining the requirements for, and providing end user configuration activities associated with, the repositories used by QGCIO and QGCTO to manage information collected as part of the QGEA.	Defining the requirements for new agency reporting portlets in Clarity.	QGCIO
QGEA publishing	Arranging the publication of QGEA artefacts and associated communications (via web or email), and promotional activity (e.g. at events).	Publication of new position papers to the QGEA website.	QGCIO
QGEA curriculum development	Defining the skills and capabilities required to perform enterprise architecture within the Queensland Government. Includes identification of the professional development options required to obtain the expected expertise over time.	<p>Identification of foundational courses in key techniques.</p> <p>Developing certification programs.</p>	QGCIO

	Supporting activity	Example activities	Responsibility
QGEA training delivery	Providing training in the theory and operation of the QGEA as it relates to Queensland Government agencies. This includes the delivery of training in key methodologies associated with the QGEA, such as the ICT Planning Methodology.	QGEA overview. ICT Planning Methodology training.	QGCIO
QGEA benefits management	Ensuring that the benefits from the application of enterprise architecture are clearly defined, measurable and provide a compelling case for continued investment – and ultimately to make sure that those benefits are actually achieved.	Measuring reductions in risk levels within application portfolios of agencies to measure benefits rising from improved planning and asset management.	QGCIO
QGEA governance	Performing secretariat support for the various governance activities that surround the QGEA and its artefacts.	Holding regular QGEA Working Group meetings. Arranging for approval of QGEA artefacts by appropriate authorities.	QGCIO and QGCTO
QGEA marketing	Promoting and advocating the QGEA as a key decision-making framework designed to set parameters that underpin consistent and aligned government decision making. Improved decisions should result in better services for Queenslanders and more efficient and effective use of ICT in the Queensland Government.	Development of fact sheets. Conducting briefing sessions on QGEA changes. Promoting the QGEA as a potential standard across the Australian government jurisdictions. Developing the QGEA “brand”.	QGCIO

End of Queensland Government Enterprise Architecture Framework 2.0