

# Architecture and Standards Development Lifecycle

Architecture and Standards Branch  
Office of the Chief Information Officer

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## Purpose of Document

This document sets out the processes used by the British Columbia Office of the Chief Information Officer (OCIO) for the development and approval of information management and information technology (IM/IT) architecture and standards.

It describes the steps in the IM/IT Architecture and Standards Development Lifecycle from initiation to retirement and the roles and responsibilities of the individuals and organizations involved in this lifecycle.

It also sets out the process for requesting and receiving approval for an exemption to an IM/IT standard.

## Document Control

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## 1.0 Introduction

The Chief Information Officer for the Province of British Columbia (GCIO) is responsible for leading the development, maintenance and communication of government wide IM/IT architecture and standards. This includes the authority to develop and modify architecture and standards in areas such as data access, identity management, records management, privacy, information security applications, and systems of government.

Architectures and Standards are critical to enabling government's IM/IT goals of value for money, service transformation, connecting people and systems, and better information sharing.

Architectures are representations or blueprints of IM/IT systems that describe the systems' key components and their relationships to each other. They guide the development of systems and set the context for IM/IT standards.

Standards are established norms or requirements that help clarify, guide and control IM/IT processes and activities. They help create a common language with which systems people and business people can communicate about the relationship between business needs and technology solutions. Standards are necessary for the inter-working, portability, and reusability of public sector information systems and systems components across the province.

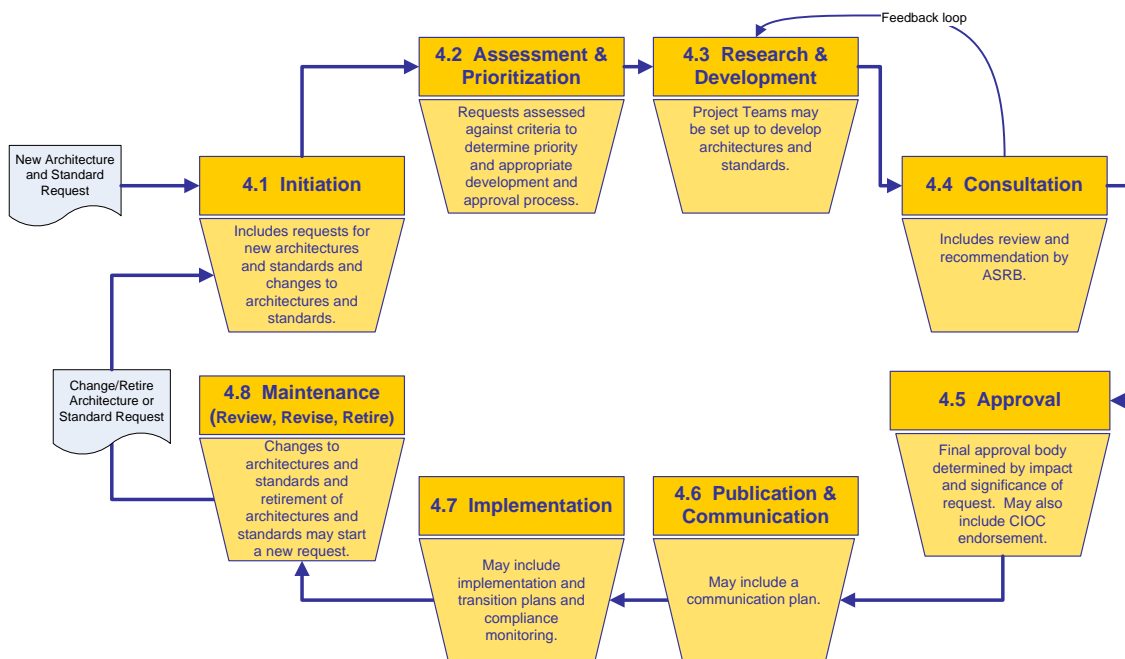
## 2.0 The Architecture and Standards Development Lifecycle

The development and approval of IM/IT architecture and standards has a lifecycle, which includes communication, implementation and maintenance functions. The Architecture and Standards Development Lifecycle consists of eight general phases: Initiation; Assessment and Prioritization; Research and Development; Consultation; Approval; Publication and Communication; Implementation; and, Maintenance. These phases are described in general terms, below.

The Architecture and Standards Branch of the OCIO is responsible for leading the development, maintenance and communication of government-wide IM/IT architectures and standards. It is also responsible for overseeing and coordinating all aspects of the Architecture and Standards Development Lifecycle. Further information on the role and responsibilities of the Architecture and Standards Branch, as well as other bodies involved in the Architecture and Standards Development Lifecycle, can be found in section 3.0.

Figure 1, below, sets out the eight phases of the Architecture and Standards Development Lifecycle.

**Figure 1 – The Architecture and Standards Development Lifecycle**



## **2.1 Initiation**

The first step in the Architecture and Standards Development Lifecycle is the Initiation Phase. In this phase, a request for a new architecture or standard, or a request to change an existing architecture or standard, is initiated.

A request may be initiated:

- by submitting a Request Form approved by a Ministry CIO or equivalent authority;
  - by specifying a need for a government-wide architecture or standard through:
  - the Information Resource Management Plan (IRMP) Process;
  - ongoing discussions and consultations with the Architecture and Standards Branch;
- requirements arising from a strategic IM/IT project;
- as a result of an incident investigation; or,
- at the request of the CIO, the CIO Council or one of its sub-committees.

In all cases, it is recommended that the request initiator contact the Architecture and Standards Branch first before submitting a formal request for a new architecture or standard or a change to an architecture or standard. There are a number of reasons why this is preferred. First, it is possible that a request is not necessary because the proposed architecture or standard or change is already in process or is already on the OCIO's work plan. Second, the request may affect an architecture or standard owned by the Information Security Branch or Workplace Technology Services (WTS) and alternate or additional steps may be required. And finally, the Architecture and Standards Branch can answer questions and provide advice and guidance on initiating the request (including whether or not the request aligns with the strategic priorities of the OCIO).

Requests that do not contain sufficient information to permit the Architecture and Standards Branch to properly assess the request, or that have not been approved by a Ministry CIO or equivalent authority will be sent back to the request initiator to be completed.

## **2.2 Assessment and Prioritization**

The second step in the Architecture and Standards Development Lifecycle is the Assessment and Prioritization phase. In this phase, requests for architectures and standards are assessed and prioritized against the government's IM/IT Plan and decisions are made on whether or not to include a request on the OCIO's work plan.

The Architecture and Standards Branch will assess and prioritize each request, in consultation with other branches of the CIO and Workplace Technology Services, where appropriate (e.g., where the request affects an architecture or standard owned by another branch of the OCIO or by WTS).

Requests for new architectures and standards or changes to architectures and standards that are necessary to enable and support government's strategic IM/IT priorities, as set out in government's IM/IT Plan, will receive the highest priority. A listing of these priorities is attached as Appendix A.

Requests that are deemed to be necessary and a high priority will be added to the OCIO's Architecture and Standards annual work plan. The work plan will be submitted to the Architecture and Standards Review Board (see section 3.3) for review and comment and to the government CIO for approval.

### **2.3 Research and Development**

The third step in the Architecture and Standards Development Lifecycle is the Research and Development Phase.

The process for researching and developing an architecture or standard will vary depending on the complexity, scope, strategic significance and likely impact of the request. For example, a request to adopt an industry technical standard may require less research and development effort than a request to develop government-wide identification standards. As well, a request to change or update an existing standard will likely (although not always) be less complex to complete than a request for a new standard.

The Architecture and Standards Branch will determine the appropriate development process for each request. Requests which are relatively straightforward to research and develop or are deemed to be of minor complexity, significance and impact may be fast-tracked and may be researched and developed primarily within the OCIO. More complex requests may require the creation of a project team with a project sponsor, director and charter.

Where a project team is required, the Architecture and Standards Branch may approach the members of the CIO Council for ministry and subject matter representation and endorsement of the project.

### **2.4 Consultation**

The fourth step in the Architecture and Standards Development Lifecycle is the Consultation Phase. Consultation with key stakeholders is critical for transparency, identifying implementation challenges and ensuring that the proposed architecture or standard achieves its stated purpose.



Key stakeholders should be identified early in the Research and Development phase and should be referenced, as appropriate, in the project charter. As noted in Figure 1, above, there is a continual feedback loop between the consultation phase and the research and development phase and in many cases, these two phases will operate simultaneously.

Where a proposed architecture or standard is scheduled to go before the Architecture and Standards Review Board (ASRB), the ASRB acts as a final consultation check point, providing ministry and sector specific representation as well as IM/IT subject matter expertise. Issues raised by the ASRB will be addressed or noted. The ASRB's final recommendation, along with any remaining objections, will be sent to the appropriate approval authority for decision. See section 3.3 for further information about the purpose and structure of the ASRB.

Not all proposed architectures and standards will be sent to the ASRB for review. The Architecture and Standards Branch will decide which standards are reviewed by the ASRB based on their strategic significance, scope and likely impact. The overall goal is to ensure the optimum use of this expert body. Time constraints and scheduling conflicts may also affect the ability of the ASRB to review a proposed architecture and standard before it is approved.

## **2.5 Approval**

The fifth step in the Architecture and Standards Development Lifecycle is the Approval Phase. The Architecture and Standards Branch coordinates the architecture and standards approval process, and determines the appropriate approval authority for a particular request, based on the following criteria.

Where the significance or impact of the proposed architecture or standard is medium to high, the final approval authority will be the Chief Information Officer. Endorsement of the CIO Council or one of its subcommittees will also be sought where the significance or impact is high or where the GCIO otherwise considers it appropriate. Examples of situations where the significance or impact of a proposed architecture or standard may be considered high include:

- It is necessary to enable or support a strategic IM/IT priority set out in the IM/IT Plan (see Appendix A);
- It was developed by a government-wide project team;
- Consultation with key stakeholders revealed significant implementation challenges;
- The financial implications are likely to be significant; or,
- It was initiated at the request of the GCIO or the CIO Council.

Where the significance or impact of the proposed architecture or standard is deemed to be low, the final approval body will be the Architecture and Standards Branch. Examples of situations where the significance or impact of a proposed architecture or standard may be considered low include:

- Minor changes of a non-substantive nature to an existing architecture or standard;
- Ongoing maintenance and upgrading of existing architecture and standards documents, including template and link changes;
- An obsolete or redundant architecture or standard is retired;
- For sake of clarity, a de facto standard is declared a standard; or,
- Adoption of an industry standard where consultation with key stakeholders revealed minor or no issues.

Where there is disagreement or uncertainty of the level of significance or impact a proposed architecture or standard may have, it will be deemed “medium” and the GCIO will be the final approval authority.

The following table sets out the likely approval process for an architecture or standards request based on its strategic significance and impact:

**Table 1 – Architecture and Standards Approval Process**

Significance and Impact	Approval Process:	Final Approval Authority
Low	1. Architecture and Standards Branch approves.	Architecture and Standards Branch
Medium	1. Architecture and Standards Branch recommends approval to GCIO; and, 2. GCIO approves.	GCIO
High	1. Architecture and Standards Branch recommends approval to CIO Council or Subcommittee; 2. CIO Council or Subcommittee endorses; and, 3. GCIO approves.	GCIO

## **2.6 Publication and Communication**

The sixth step in the Architecture and Standards Development Lifecycle is the Publication and Communication Phase.

Once a proposed architecture or standard is approved, the Architecture and Standards Branch is responsible for publishing it on the OCIO website.

Architectures may be published in project documents or as architecture summaries. Standards are published in the IM/IT Standards Manual. Where a proposal to change a standard is approved, the new version will replace the former version and the former version will be archived. Retired standards will also be archived. The archive of former standards is available on the OCIO website.

The Architecture and Standards Branch shares responsibility for communicating the existence and impact of the architecture or standard with the sector representatives on the ASRB and with those responsible for implementing the architecture or standard.

In some cases a communication plan may be developed as part of the project plan to develop the standard. In these cases, the project charter will state who is responsible for developing and implementing the communication plan.

## **2.7 Implementation**

The seventh step in the Architecture and Standards Development Lifecycle is the Implementation Phase.

Responsibility for implementing an architecture or standard rests with ministries and other government agencies to whom the architecture or standard applies. A standard may have an implementation schedule which sets out the date(s) when government agencies are required to comply with the standard.

The Architecture and Standards Branch may provide support in the form of implementation tools, guidelines and advice. The Architecture and Standards Branch may also monitor compliance with a standard and/or require a ministry or government agency to report on its compliance with a standard.

Where a ministry or government agency, despite its best efforts, cannot comply with a standard or needs more time to come into compliance, it may request an exemption from a standard. Exemptions from standards are not granted lightly. A compelling case must be made and a plan for coming into compliance included with the request. The process for requesting an exemption to a standard is set out in section 4.0, below.

## **2.8 Maintenance**

The eighth and final step in the Architecture and Standards Development Lifecycle is the Maintenance Phase.

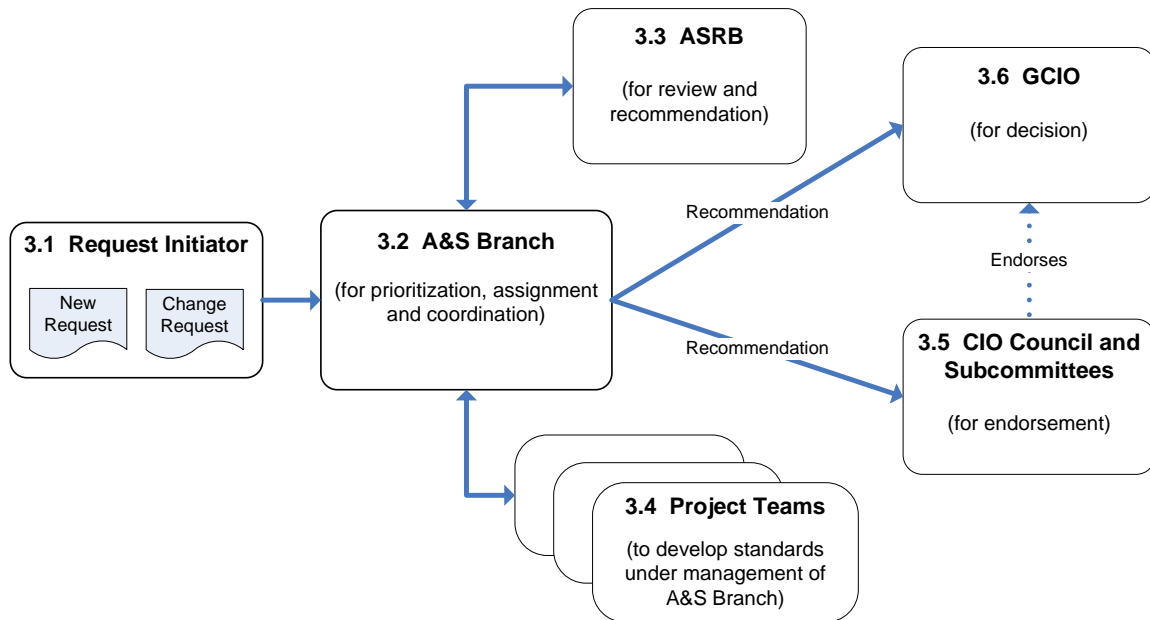
The Maintenance Phase involves the ongoing review and updating of published architectures and standards, including the retirement of redundant and obsolete standards.

As illustrated in Figure 1, above, where a review results in a proposal for a significant change to an existing architecture or standard (including a proposal to retire a standard), this will initiate a new request and start the development lifecycle anew.

## 3.0 Roles and Responsibilities

The following section sets out the key individuals, organizations, and committees involved in the Architecture and Standards Development Lifecycle and describes the roles and responsibilities of each.

**Figure 2 – Roles in the Architecture and Standards Development Lifecycle**



### 3.1 Request Initiator

The request initiator is the individual, organization, committee or project team that initiates a request for

- a new architecture or standard; or,
- a change to an existing architecture or standard.

See section 2.1 for further information on how to initiate a request.

All requests are assessed and prioritized by the Architecture and Standards Branch, in consultation with other branches of the CIO and Workplace Technology Services, where appropriate. The request initiator is informed of the outcome of the assessment and prioritization process.

If a request is selected to proceed through the development lifecycle, the request initiator is kept informed of the progress and may be called upon to provide more information in support of the request, supply resources to a project team or

attend a meeting of the Architecture and Standards Review Board (see 3.3, below) to provide clarification and subject matter expertise.

### **3.2 Architecture and Standards Branch (A&S Branch)**

The Architecture and Standards Branch of the Office of the CIO is responsible for leading the development, maintenance and communication of government-wide IM/IT architecture, standards, guidelines and best practices.

Its mission is to provide coordinated IM/IT architecture and standards to government that will enable citizen-centric service delivery and the connection of the entire public sector workforce.

The Architecture and Standards Branch is also responsible for overseeing and coordinating all aspects of the Architecture and Standards Development Lifecycle including:

- Receiving and tracking requests for new standards, changes to standards, and exemptions from standards;
- Prioritizing requests to support the IM/IT Plan and government's strategic goals;
- Developing an annual plan for the development of new architecture and standards;
- Creating and managing project teams to research and develop standards where necessary;
- Chairing and providing secretariat support for the Architecture and Standards Review Board;
- Coordinating the architecture and standards approval process;
- Approving minor changes to architecture and standards and exemptions to standards; and,
- Maintaining the IM/IT Standards Manual for government which includes publishing new standards and changes to standards and removing or retiring redundant or obsolete standards.

### **3.3 Architecture and Standards Review Board (ASRB)**

The Architecture and Standards Review Board (ASRB) is responsible for reviewing and recommending for approval to the OCIO and the Chief Information Officers' Council (CIO Council), proposed architecture and standards and changes to existing architecture and standards.

The ASRB may also provide advice to project teams set up by the OCIO, the CIO Council or one of its sub-committees to develop government-wide architecture and standards.



The Architecture and Standards Branch of the OCIO will chair and provide secretariat services to the ASRB. Membership of the ASRB will include representatives from:

- the Architecture and Standards Branch of the OCIO;
- the Information Security Branch of the OCIO;
- Workplace Technology Services;
- Service BC;
- the Data Administrators Forum (DAF); and,
- Ministries (one each from the Economic, Education, Health, Justice, Natural Resource and Social sectors)

Each representative is responsible for representing his or her sector or area of expertise. A copy of the ASRB's Terms of Reference is available at [insert link]

### **3.4 Project Teams**

Project teams may be established on an as needed basis, under a project charter, to research and develop government-wide architectures and standards. These project teams will be established for a specific period of time and will be responsible for producing deliverables according to a schedule set out in the charter.

Project teams are set up and managed by the Architecture and Standards Branch. Resources will be requested from ministries to participate on project teams.

Completed standards are delivered to the Architecture and Standards Branch to be approved or assigned to the ASRB for review.

### **3.5 Chief Information Officer's Council (CIO Council) and Subcommittees**

In situations where a proposed architecture or standard is considered to have high significance or impact (see section 2.5 for criteria), endorsement will be sought from the CIO Council or one of its subcommittees prior to final approval. Endorsement may also be sought where requested by the GCIO.



### **3.6 Chief Information Officer for the Province of British Columbia (GCIO)**

The Chief Information Officer for the Province of British Columbia (GCIO) is the final decision making authority for architecture and standards. Not all standards requests will require approval by the GCIO; only those determined to be of medium or higher significance or impact or where significant concern has been expressed by key stakeholders. Requests of minor significance/impact or that involve minor changes will continue to be approved by the Architecture and Standards Branch. See section 2.5 for more information on the approval process criteria.

## 4.0 Requests for an Exemption to a Standard

Where a ministry or government agency, despite its best efforts, cannot comply with a standard or needs more time to come into compliance with a new or revised standard, it may request an exemption from a standard. Pilot projects testing new or innovative technology may also require a temporary exemption to a standard.

In these situations, the ministry or government agency (the request initiator) must submit a request for an exemption to a standard to the Architecture and Standards Branch. The request must set out:

- The standard(s) for which the exemption is being requested;
- The timeframe for the request;
- The reason for the request (including why the agency cannot comply at this time and what steps it has taken to try and comply, if applicable);
- Benefits (of receiving the exemption) and implications (of not receiving the exemption); and,
- A plan for coming into compliance.

An Exemption Request Form may be used to facilitate the documentation of the request. Although it is not necessary to use the standards exemption form, the request must, at a minimum, include the information required by the form.

The Architecture and Standards Branch will contact the request initiator if more information is required and to advise the request initiator of the status of the request (i.e., who the request has been assigned to and when a response may be expected).

## 5.0 Contacts

For more information about the Architecture and Standards Development Lifecycle, please contact the Architecture and Standards Branch at [ASB.CIO@gov.bc.ca](mailto:ASB.CIO@gov.bc.ca), or visit <http://www.cio.gov.bc.ca/legislation/standards/>

## Appendix A: Strategic IM/IT Priorities

The OCIO has developed an IM/IT Plan to transform the way government uses and manages information and technology, with the goal to improve information sharing, improve value for money, and transform public service delivery. The plan includes 5 work streams of activities:

- Maximizing IM/IT Investments;
- Connected Systems;
- Connected People;
- Informed Decision Making; and
- Partner Engagement.

The strategic initiatives and infrastructures listed here are key to the success of these 5 work streams.

Architectures and standards exist (see IM/IT Standards Manual) or are being developed in all of these key areas and play a fundamental role in achieving the strategic business goals of government. For this reason, the OCIO will place the highest priority on the development of architectures and standards that are fundamental to enabling, supporting or transforming these strategic initiatives or infrastructure.

### IM/IT Strategic Initiatives

1. Identity Management
2. Information Access Layer
3. Advanced Communication and Collaboration
4. Integrated Case Management
5. Data Warehousing and Business Intelligence

### IM/IT Strategic Infrastructure/Shared Services

1. Data Centres and Hosting Services
2. Workstation Services
3. Network Services
4. Office Productivity Services
5. Corporate Accounting and Human Resources Management