



## **Governor's Office of Innovation & Technology**

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# **IT Lifecycle Management & Governance Process**

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## IT Governance Workgroup Members

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## 1.0 Overview

This document specifies the process the Governor's Office of Innovation & Technology (OIT) will use to manage and track key IT projects, initiatives, and procurement requests. The Colorado Commission on Information Management (IMC) was created to:

- Oversee strategic planning and set policy for the state's information systems
- Assure continuity in planning and controlling the state's investment in information systems

In order to achieve these goals, OIT must provide the IMC with visibility to key IT initiatives. This document is intended to assist IT departments in understanding the IMC/OIT deliverables and the governance process for IT projects.

## 2.0 IT Lifecycle Management & Governance Process

The IT lifecycle management process, depicted in Figure 1, identifies seven stages, from ideation to operations and maintenance. The process encompasses management reviews at the beginning of each stage, to ensure readiness to proceed to the next stage. Decision points or gates are included throughout the process. The process formalizes the OIT intake process and strengthens the overall governance structure.

### 2.1 Governance Model

The purpose of a governance model is to drive prioritization and alignment to strategy. Although the emphasis of this document is on the requirements IT departments will follow to ensure visibility of key IT initiatives to the IMC, the Joint Budget Committee (JBC), the State's fiscal and budget review agency, will require strategic plans and budget requests from each department as part of the State's annual budgeting and planning process. This information is also provided to the IMC. The Office of State Planning and Budgeting (OSPB) annually publishes the Strategic Plan and Budget Request Instructions departments are required to follow. More information on this process can be found in the OSPB planning documents at: [http://www.state.co.us/gov\\_dir/govnr\\_dir/ospb/budgetinstructions.html](http://www.state.co.us/gov_dir/govnr_dir/ospb/budgetinstructions.html)

Departments may be required to present information on their initiatives or projects to the JBC. These reviews or project presentations will be on a case-by-case basis as required by the JBC. To ensure effective management of IT investments, the IMC may also be requested by the JBC to discuss various IT initiatives from an enterprise perspective, just as the IMC may request to meet with the JBC to ensure alignment of IT initiatives to state goals and priorities. The IMC decides which projects to track and monitor progress, based on a combination of cost, size, technical challenges, and risk issues. This, Project Oversight, is done to validate compliance to State IT plans and policies in accordance with Colorado statute 24-37.5-204, which require that State agencies comply with plans, policies, and directives issued by the commission and when necessary, provide satisfactory evidence of compliance.

### 3.0 Benefits

The benefits of the lifecycle management process are:

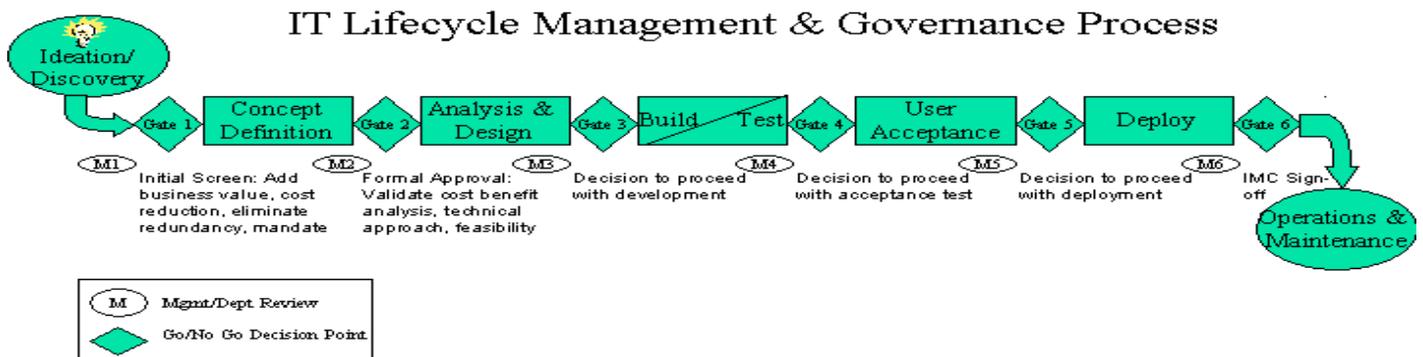
- Reduces project risk
- Involves management and key stakeholders throughout the process
- Improved communications and accountability
- Allows management to kill or suspend projects at the appropriate time, thereby saving costs and redirecting resources to other initiatives

### 4.0 Understanding the Gated Process

The following sections describe each stage of the IT lifecycle management process.

#### 4.1 Ideation/Discovery

Stage 1 is initiated by a business need or concept. Requests at this stage are managed internally by the department. The initiator of the idea must present the concept to the business sponsor (e.g. Executive Director) and agency CIO. If the business sponsor agrees with the idea or concept, a business case must be developed. The idea or concept progresses to the next stage with a preliminary business case, project concept, and preliminary schedule and budget. The objectives of this stage are to validate feasibility of idea or concept and to obtain executive and department approval to proceed.



**Figure 1: IT Lifecycle Management & Governance Process**

### 4.1.1 Inputs

- Business idea or concept
- Business need
- Regulatory/State mandate
- Technology obsolescence

### 4.1.2 Outputs

- Initial Business case (Efficiency and Effectiveness Analysis)
- Alignment to Department Strategic Plan
- Alignment to Department IT Plan
- IT Project Plan (ITPP)

## 4.2 Concept Definition

The Concept Definition stage involves finalizing the business case, creating the project scope, and assigning resources. The preliminary project plan and budget are updated. At the end of this stage, funding is secured and the project officially starts.

The objectives of the Concept Definition stage are to:

- Validate cost benefit analysis or business case (via Efficiency and Effectiveness Analysis)
- Validate technical approach (via ITPP)
- Initiate the Project

### 4.2.1 Inputs

- Business Case (Efficiency and Effectiveness Analysis)
- Preliminary project schedule and budget
- Department Strategic Plan
- Department IT Plan
- IT Project Plan (ITPP)

### 4.2.2 Outputs

- Business Requirements
- High-level System Requirements
- System Architecture Model
- Business Process Models
- Data Models/Dictionary
- Request For Proposals (RFP) Solicitation & Award (if applicable)
- Updated Project Plan & Schedule
- Change Requests (if applicable)

- Supplemental Budget Amendments (if applicable)

### **4.3 Analysis and Design**

The Analysis and Design stage involves creating the detailed system requirements. High-level requirements from the previous stage are refined and developed into detailed requirements for systems design and development.

#### **4.3.1 Inputs**

- Business Requirements
- High-level System Requirements
- System Architecture Model
- Business Process Models
- Data Models/Dictionary
- RFP Award (if applicable)
- Updated Project Plan & Schedule

#### **4.3.2 Outputs**

- Detailed System Design
- Training & Implementation Plans
- Change Control Process
- Test Plans/Use cases
- Updated Project Plan & Schedule

### **4.4 Build and Test**

This stage uses the specification from Stage 3 to develop the proposed solution or system. All application modules are built, tested as units and as an integrated system.

#### **4.4.1 Inputs**

- Detailed System Design & Documentation
- Test plans & Procedures
- Updated Models
- Updated Project Plan & Schedule

#### **4.4.2 Outputs**

- Tested System
- Training Materials
- User & Technical Support Documentation
- Updated Project Plan & Schedule

## **4.5 User Acceptance**

The User Acceptance stage verifies that the developed system meets the business and user requirements. Client acceptance testing are performed in a controlled environment to ensure the developed system is operationally ready for deployment.

### **4.5.1 Inputs**

- Training Materials
- User & Technical Support Documentation
- Test Plans & Procedures
- Updated Project Plan & Schedule

### **4.5.2 Outputs**

- User Accepted System
- Updated Deployment Plan
- Updated Project Plan & Schedule

## **4.6 Deploy**

This stage involves deploying the tested system into a production or operating environment. Once deployed, the system operation transitions from the project development team to the operations and support team.

### **4.6.1 Inputs**

- Thoroughly Tested/User Accepted System
- Updated User Documentation/Training Materials
- Updated Deployment Plan
- Updated Project Plan & Schedule

### **4.6.2 Outputs**

- Deployed System
- Final Project Documentation/Report
- Lessons Learned
- Post Project Audit

## 4.7 Operations & Maintenance

The project is complete at this point and the deployed system goes into operations and maintenance. The maintenance and support staff within the department agency manages upgrades and enhancements to the system.

### 4.7.1 Inputs

- The Deployed System
- Project and operations documentation

### 4.7.2 Outputs

- Results of software administration tasks
  - System performance monitoring
  - Technology refresh plans
  - Maintained test environment (for enhancements/bug fixes)
- Results of software maintenance activities
  - Change management process
  - Release management process
  - Change request process including cost/benefit analysis
  - Maintenance plan

### 5.0 Roles and Responsibilities

The lifecycle management process requires support from a cross functional team of resources, including, management, technical, financial and executive areas. Listed below are the roles and responsibilities of the primary teams and individuals that are essential at various stages of the process. All roles may not be applicable to each agency or project initiative (e.g. Agency Controller). However, the Business Sponsor, CIO, IMC/OIT, and Project Manager are required for all IT projects that meet the criteria defined in section 7.0. The Agency CIO will manage the approval process to ensure the appropriate functions are involved throughout the project lifecycle.

**Table 1: Roles & Responsibility Matrix**

	Business Ideation/Discovery	Concept Definition	Analysis & Design	Build & Test	User Acceptance	Deploy	Operations & Maintenance
IMC		A	M	M	M	R	M
Executive Director/Business Sponsor/Client Lead	A	A	A	A	A	A	A
Agency CIO	A	A	A	A	A	A	A
Agency Controller		R					
OSP		R/A					
AG's Office		R/A					
OIT Program Management Office (PMO)		A	M	M	M	M	R
OIT Chief Financial Officer (CFO)		R					
DPA/DoIT		R/A	M	R			R
Architectural Review Committee		R/A	R	R			
OIT Security		R	R				
Project Manager/Agency Project Manager		P	P	P	P	P	P
Requester	P						

**Responsibility Codes:**

<b>P</b> = Primarily responsible for ensuring that all tasks and activities are complete, including coordination, escalation, and removal of roadblocks	<b>R</b> = Responsible for reviewing and accepting the results of the activities	<b>A</b> = Responsible for approval and sign-off on deliverable; sign-off must occur before subsequent activities continue	<b>M</b> = Monitor Progress/Oversight
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## 6.0 Governance Approval Process

The gates defined at the end of each stage ensure the deliverables required are accepted and approved by the client and/or stakeholders. The governance process starts with the department agency at Gate One. This gate or decision point is the initial screen to validate business value and strategic alignment of an idea, concept or request. The process ends at Gate Six, in which the IMC validates the implementation to the extent to which the project satisfied user/business requirements and met the specified targets for scope, budget, schedule, and quality.

Listed below is an overview of the approvals required at each gate in the process.

**Table 2: Stage Gate Approval Process**

<b>Stage Gate</b>	<b>Governance Checkpoint</b>	<b>Approvals/Stakeholders</b>
One – Initial Screen	<ul style="list-style-type: none"> <li>• Adds business value (e.g. cost reduction, eliminate redundancy)</li> <li>• Alignment to IT, Agency, and State goals</li> <li>• Regulatory mandate</li> </ul>	Executive Director/Business Sponsor, Agency CIO
Two – Validate Business Benefit	<ul style="list-style-type: none"> <li>• Validate cost benefit analysis (business case)</li> <li>• Validate technical approach/architecture</li> <li>• Assess project risk</li> </ul>	Executive Director/Business Sponsor, Agency CIO, IMC/OIT, OSPB, Architectural Review Committee, DPA/DoIT
Three – Department Reviews/Walkthroughs; Management of project schedule, budget, risks	<ul style="list-style-type: none"> <li>• Readiness to proceed to next stage</li> <li>• Design Reviews</li> <li>• Validate test and implementation approach</li> </ul>	Executive Director/Business Sponsor, Agency CIO, IMC/OIT
Four – Department Reviews/Walkthroughs; Management of project schedule, budget, risks	<ul style="list-style-type: none"> <li>• Readiness to proceed to next stage</li> <li>• Code &amp; Test Reviews</li> <li>• Validate training and implementation plans</li> </ul>	Executive Director/Business Sponsor, Agency CIO, IMC/OIT
Five – Department Reviews/Walkthroughs; Management of project schedule, budget, risks	<ul style="list-style-type: none"> <li>• Readiness to deploy</li> <li>• User acceptance testing</li> <li>• Client signoff</li> </ul>	Executive Director/Business Sponsor, Agency CIO, IMC/OIT
Six – IMC signoff on implementation	<ul style="list-style-type: none"> <li>• Solution functioning and implemented</li> <li>• Goals met as per business case</li> <li>• Readiness to proceed to Operations &amp; Maintenance (e.g. support staff and budget in place)</li> </ul>	Executive Director/Business Sponsor, Agency CIO, IMC/OIT

### 7.0 OIT Procurement Review Request Process

All non-higher education IT technology procurement requests in excess of \$25,000 must be approved by OIT in accordance with Section 24-37.5, C.R.S. Alternatively, any planned project initiative(s) involving 500 hours or more, are to be submitted to OIT for review and approval. This includes, but is not limited to, hardware, software, workstation, network and telecom purchases, and any related professional services. The purpose of this procurement review is to:

- Promote statewide uniformity of standards and systems
- Ensure aggregation of demand and economies of scale regarding purchasing power
- Ensure requests are strategically aligned with the state’s IT strategic agenda

Any procurement request in excess of \$25,000 is to be line itemized on the Department’s Procurement Plan, Schedule 4020. The review request shall be submitted to OIT for consideration prior to soliciting quotations, bids or proposals from vendors. Any award in excess of \$50,000 is to be subsequently reported to OIT along with cost element details of the purchase in order for OIT to monitor market cost and pricing information.

Listed below is the decision matrix for requests requiring OIT approval.

**Table 3: Project Decision Matrix**

Project Attribute	Yes	No
500 Project Hours or more		
Request > \$25,000		
Implementation has an impact to the statewide telecommunication infrastructure or network (requires DoIT resources)		
High impact to existing business processes *		
High impact to business workflow and/or usability *		
<i>If the answer is “Yes” to any of the items listed above, OIT/IMC approval to proceed is required</i>		
<small>* High refers to a significant change to an agency’s current processes due to the system implementation as well as the automation of a manual business process. The Business Sponsor will determine the degree (high, medium, low) of impact to the business.</small>		
Technical Criteria	Yes	No
Project initiative is compliant with Architectural standards		
Project initiative is compliant with Security standards		
Project initiative is compliant with IT policies and standards		
<i>If the answer is “No” to any of the items listed above, OIT/IMC approval to proceed is required</i>		

Other areas of risk assessment OIT will use for project requests include:

- Project alignment to Agency and Statewide strategic goals
- Critical success factors clearly identified
- Size and complexity of project
- Maturity level of project management skills and experience
- Technical competency and skill sets of personnel or vendor(s) to implement project
- Infrastructure dependencies/Level of modifications to infrastructure
- Newness of technology
- Project dependencies on other projects or agencies

## **8.0 Related Documents**

IT Project Plan (ITPP)

Efficiency and Effectiveness Analysis (E&E)

State of Colorado Information Technology Standards and Guidelines

Governor's Office of State Planning and Budgeting Strategic Plan and Budget Request Instructions

## 9.0 Glossary

<b>Term</b>	<b>Definition</b>
Analysis & Design	The third stage of the lifecycle management process detailed system requirements are created and used to build the proposed system.
Build & Test	Stage four of the lifecycle management process where the business system is constructed and tested.
Business Function	A broad classification of constituent-based activities performed by an agency.
Change Management	Processes and standards for controlling change in project deliverables, including documents, requirements, code, and test cases.
Concept Definition	Stage two of the lifecycle management process where the business case and project scope are created.
Gate	A decision point within the lifecycle management process that requires management to make a go/no go decision to proceed.
Deliverable	A tangible product (e.g. document, computer program, test results) that is created throughout the stages of lifecycle management process.
Deploy	Stage six of the lifecycle management process where the tested and user approved system is deployed into a production or operating environment.
Ideation/Discovery	The first stage of the lifecycle management process in which the idea or concept for the project is developed. Stage 1 ends when the agency CIO and business sponsor have provided approval to proceed.
Operations & Maintenance	The seventh stage of the lifecycle management process where the deployed system is maintained. Enhancements may continue until the system reaches its maturity and is then replaced or retired.
Post Project Audit	Analysis of Business Case, requirements, and justification achieved. Analysis of "use" of system to insure goals identified were achieved; Identify design and implementation deficiencies as appropriate. Capture lessons learned.
User Acceptance	Stage five of the lifecycle management process is where the system is tested by the client to validate the business and user requirements and to ensure readiness to deploy into production.
Stage	A step in the lifecycle management process. The stages are: Ideation/Discovery, Concept Definition, Analysis & Design, Build & Test, User Acceptance, Deploy, and Operations & Maintenance.