

Commonwealth of Virginia



Information Technology Resource Management Standard

for

INFORMATION TECHNOLOGY INVESTMENT MANAGEMENT (ITIM)

Virginia Information Technologies Agency

Reviews

- This publication was reviewed and approved by the Director of the Policy, Practice and Architecture Division.
- Online review was provided for agencies and other interested parties via the VITA Online Review and Comment Application (ORCA).

Publication Version Control

Questions related to this publication should be directed to the Director of VITA's Policy, Practice, and Architecture (PPA) Division. PPA notifies Agency Information Technology Resources (AITRs) at all state agencies, institutions and other interested parties of proposed revisions to this document.

This following table contains a history of revisions to this publication.

Version	Date	Purpose of Revision
COV ITRM Standard CPM 516-00	09/30/2008	Publication of ITIB-approved original Standard
COV ITRM Standard CPM 516-01	05/09/2012	This is a major revision to the ITIM standard which addresses administrative updates necessitated by changes in the <i>Code of Virginia</i> that impact the Commonwealth Project Governance Assessment (CPGA) methodology. Changes include revision of roles and responsibilities, increase in dollar values expenditures requiring CIO approval, clarification of requirements in section 4 and changes in the document's format to align with the document development process.

Agency Exception Requests

Agencies that want to deviate from the requirements and/or technology standards specified in COV ITRM Standards may request an exception using the *Enterprise Architecture Change/Exception Request Form*. All exceptions must be approved prior to the agency pursuing procurements, deployments, or development activities related to technologies that are not compliant with the standard. The instructions for completing and submitting an exception request are contained in the current version of *COV ITRM Enterprise Architecture Policy*. The Policy and exception request form is on the ITRM Policies, Standards and Guidelines web page at <http://www.vita.virginia.gov/library/default.aspx?id=537>.

Preface

Publication Designation

COV ITRM Standard CPM 516-01

Subject

Information Technology Investment Management

Effective Date

May 9, 2012

Supersedes

COV ITRM Standard CPM 516-00, 09/30/2008

Scheduled Review:

One (1) year from the effective date, then every two years thereafter.

Authority

Code of Virginia, §2.2-225 (Powers and duties of the Secretary of Technology)

Code of Virginia, §2.2-2007 (Powers of the CIO)

Code of Virginia, § 2.2-2010 (Additional powers of VITA)

Code of Virginia, § 2.2-2699.6 (Powers and duties of the ITAC)

Scope

This policy is applicable to all Executive Branch agencies and institutions of higher education (hereinafter collectively referred to as "agencies") that are responsible for the management, development, purchase and use of information technology resources in the Commonwealth of Virginia. This policy does not apply to research projects, research initiatives or instructional programs at public institutions of higher education.

Purpose

The purpose of this policy is to establish guiding principles for creating optimal business value from IT-enabled business investments at acceptable cost and risk.

General Responsibilities

Secretary of Technology

Reviews and approves statewide technical and data policies, standards and guidelines for information technology and related systems recommended by the CIO.

Chief Information Officer of the Commonwealth (CIO)

Develops and recommends for approval to the Secretary of Technology statewide technical and data policies, standards and guidelines for information technology and related systems.

Virginia Information Technologies Agency (VITA)

At the direction of the CIO, VITA leads efforts that draft, review and update technical and data policies, standards, and guidelines for information technology and related systems. VITA uses requirements in IT technical and data related policies and standards when establishing contracts; reviewing procurement requests, agency IT projects, budget requests and strategic plans; and when developing and managing IT related services.

Information Technology Advisory Council (ITAC)

The ITAC advises the CIO and Secretary of Technology on the development, adoption and update of statewide technical and data policies, and standards and guidelines for information technology and related systems.

Executive Branch Agencies

Provide input and review during the development, adoption and update of statewide technical and data policies, standards and guidelines for information technology and related systems.

Glossary

As appropriate, terms and definitions used in this document can be found in the COV ITRM IT Glossary. The COV ITRM IT Glossary may be referenced on the ITRM Policies, Standards and Guidelines web page at <http://www.vita.virginia.gov/library/default.aspx?id=537>.

Table of Contents

1. INTRODUCTION	4
1.1 Definition of Information Technology Investment Management.....	4
1.2 Purpose of the Information Technology Resource Management ITIM Standard	4
1.3 Commonwealth Business Needs	4
<i>Figure 1: Drivers of Commonwealth Business Needs</i>	<i>5</i>
1.4 The ITIM Process.....	5
<i>Figure 2: The ITIM Phases</i>	<i>6</i>
1.5 ITIM Stakeholders	6
1.5.1 Secretary of Technology.....	6
1.5.2 Commonwealth Chief Information Officer (CIO)	7
1.5.3 Information Technology Advisory Council (ITAC)	7
1.5.4 Commonwealth Project Management Division (PMD).....	8
1.5.5 Commonwealth IT Investment Management Division (ITIMD)	8
1.5.6 Commonwealth Secretariats	8
1.5.7 Commonwealth Agencies.....	9
1.5.8 Commonwealth Programs.....	9
1.6 Commonwealth Strategic Planning.....	9
1.6.1 The Council on Virginia’s Future	10
1.6.2 Commonwealth Technology Business Plan	10
1.6.3 Commonwealth Strategic Plan for Information Technology.....	10
1.6.4 Commonwealth Enterprise Architecture (EA).....	10
<i>Figure 3: Enterprise Architecture Process Model</i>	<i>11</i>
1.6.5 Commonwealth Technology Portfolio (CTP).....	11
1.6.6 Agency IT Strategic Plan (ITSP)	11
1.6.7 Agency Technology Portfolio (ATP)	12
2. MEASURING IT INVESTMENT VALUE	13
2.1 What is Value?	13
2.1.1 Constituent Service	13
2.1.2 Operational Efficiency	13
2.1.3 Strategic Alignment.....	13
2.2 Using Value and Risk to Make IT Investment Decisions.....	13
<i>Figure 4: Example IT Investor Map Showing Value vs. Risk.....</i>	<i>14</i>
3. PORTFOLIO MANAGEMENT	15
3.1 What is Portfolio Management?	15
<i>Figure 5: ITIM, APM, and PPM</i>	<i>15</i>
3.2 Commonwealth Project Portfolio Management (PPM).....	15
<i>Figure 6: The PPM Lifecycle.....</i>	<i>16</i>
3.2.1 IT Investment Analysis and Ranking	16
3.2.2 Select IT Portfolio.....	16
3.2.3 Control Ongoing Projects.....	16
3.2.4 Closeout Project and Programs.....	17
3.3 Commonwealth Asset Portfolio Management (APM).....	17
<i>Figure 7: The APM Lifecycle</i>	<i>17</i>
3.3.1 Infrastructure Service Portfolio Management (ISPM)	17
<i>Figure 8: The ISPM Lifecycle</i>	<i>18</i>

3.3.1.1	Measure Infrastructure Services Performance	18
3.3.1.2	Evaluate Infrastructure Service Value	18
3.3.1.3	Determine Disposition of Current Infrastructure	18
3.3.1.4	Identify Business Need for IT Investment.....	19
3.3.2	<i>Solutions Portfolio Management (SPM)</i>	19
<i>Figure 9: The SPM Lifecycle</i>	.....	19
3.3.2.1	Measure Application Performance	19
3.3.2.2	Evaluate Application Value	20
3.3.2.3	Determine Disposition of Current Applications.....	20
3.3.2.4	Identify Business Need for IT Investment.....	20
4.	PHASES OF ITIM	21
4.1	Pre-select (Identify) Phase.....	21
4.1.1	<i>Pre-select (Identify) Phase Requirements</i>	21
<i>Figure 10: Pre-Select (Identify) Phase</i>	.....	21
4.1.1.1	Identify Business Needs	21
4.1.1.2	Prioritize Business Needs.....	22
4.1.1.3	Develop Investment Business Cases	22
4.1.2	<i>Pre-select (Identify) Phase Roles and Responsibilities</i>	22
4.2	Select Phase	24
4.2.1	<i>Select Phase Requirements</i>	24
<i>Figure 11: Select Phase</i>	.....	25
4.2.1.1	Evaluate, Score, and Approve Investment Business Cases	25
4.2.1.2	Analyze and Rank Investments	26
4.2.1.3	Select Investment Portfolio.....	26
4.2.2	<i>Select Phase Roles and Responsibilities</i>	26
4.3	Control Phase.....	27
4.3.1	<i>Control Phase Requirements</i>	28
<i>Figure 12: Control Phase</i>	.....	28
4.3.1.1	Plan and Execute IT Investments	28
4.3.1.2	Review IT Investment Execution	29
4.3.1.3	Close IT Investments.....	29
4.3.2	<i>Control Phase Roles and Responsibilities</i>	29
4.4	Evaluate Phase.....	31
4.4.1	<i>Evaluate Phase Requirements</i>	31
<i>Figure 13: Evaluate Phase</i>	.....	32
4.4.1.1	Conduct Post Implementation Review	32
4.4.1.2	Conduct IT Asset Evaluation	32
4.4.1.3	Determine Asset Disposition	32
4.4.2	<i>Evaluate Phase Roles and Responsibilities</i>	32
	APPENDIX A: ACRONYMS USED IN THE ITIM STANDARD	35
	APPENDIX B: SECRETARY OF TECHNOLOGY ITIM PHASE	
	RESPONSIBILITIES.....	37
	APPENDIX C: CIO ITIM PHASE RESPONSIBILITIES.....	38
	APPENDIX D: ITAC ITIM PHASE RESPONSIBILITIES.....	40
	APPENDIX E: PMD ITIM PHASE RESPONSIBILITIES.....	41
	APPENDIX F: ITIMD ITIM PHASE RESPONSIBILITIES	42
	APPENDIX G: SECRETARIAT ITIM PHASE RESPONSIBILITIES.....	43
	APPENDIX H: AGENCY ITIM PHASE RESPONSIBILITIES.....	44
	APPENDIX I: PROGRAM ITIM PHASE RESPONSIBILITIES	45

1. INTRODUCTION

1.1 Definition of Information Technology Investment Management

Information Technology Investment Management (ITIM) is a management process that provides for the pre-selection (identification), selection, control, and evaluation of business need driven Information Technology (IT) investments across the investment lifecycle. ITIM uses structured processes to minimize risks, maximize return on investments, and support Commonwealth agency decisions to maintain, migrate, improve, retire, or obtain IT investments. ITIM is the basis for the Commonwealth's approach to technology management as approved by the Information Technology Investment Board in the Commonwealth Technology Management Policy (CTM Policy).

1.2 Purpose of the Information Technology Resource Management ITIM Standard

The purpose of the Commonwealth of Virginia Information Technology Resource Management ITIM Standard (ITIM Standard) is to:

- describe the phases in the ITIM process;
- define how the value of an IT investment is measured in each phase;
- identify the required actions associated with each phase; and,
- assign roles and responsibilities for those actions,

in order to maximize the business value of IT investments in the Commonwealth.

1.3 Commonwealth Business Needs

The business needs of agencies drive IT investments in the Commonwealth. To identify those business needs, agencies draw from a number of sources. The Governor of Virginia and the Council on Virginia's Future both set goals that provide overarching guidance and direction on how Commonwealth agencies will meet the Commonwealth's strategic objectives. These goals help focus the agencies on what the citizens need. The Commonwealth goals also form the foundation for both the Commonwealth Strategic Plan for IT and the Agency Strategic Plans. Federal and State mandates and laws will also drive Commonwealth business needs. There are also opportunities to provide citizen services that arise when grant funding is made available to the agencies. In addition, some agencies use Consumer Boards to identify the needs of the citizens who use the agency's services. Together, all of these drivers help Commonwealth agencies identify and document business needs, and invest in technology to meet those needs.



Figure 1: Drivers of Commonwealth Business Needs

1.4 The ITIM Process

ITIM is the Commonwealth's primary process for:

1. Identifying the potential business value in proposed IT investments;
2. Selecting IT investments that best meet the business needs;
3. Monitoring the performance of the initiatives for developing and placing the selected IT investments into operation; and
4. Determining if the selected IT investments are continuing to deliver the expected business value.

The ITIM process consists of four Phases. The goal of the Pre-Select (Identify) Phase is to identify, analyze, and document IT investments that support agency business needs. The goal of the Select Phase is to decide from among the potential investments identified in the Pre-Select (Identify) Phase which investments to undertake. The goal of the Control Phase is to ensure that IT investments are developed and placed in operation using a disciplined, well-managed, and consistent process. The goal of the Evaluate Phase is to compare the actual performance results and benefits of an investment to the range of target performance measures established for the investment. The ITIM process is repeated within the agency and the Commonwealth on an annual basis and as part of the budget cycle.

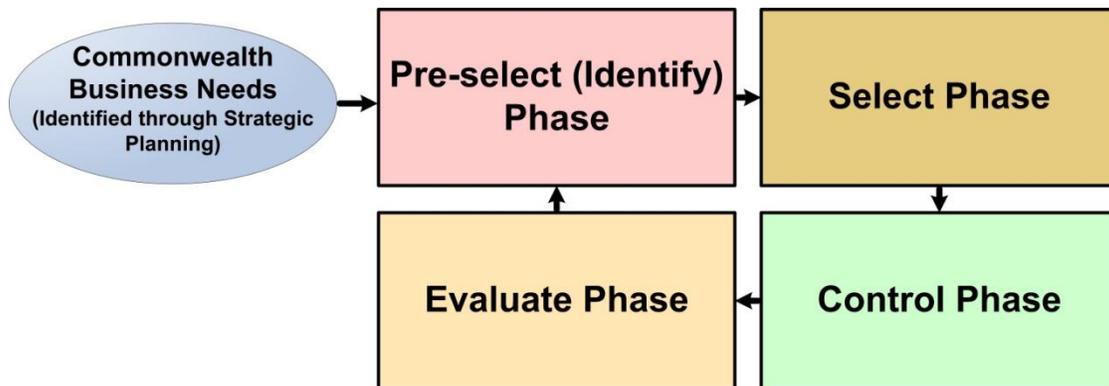


Figure 2: The ITIM Phases

ITIM in the Commonwealth is based on:

- The recognition that the Commonwealth strategic planning process drives technology investment strategies;
- The need to support effective communication about technology investment decisions;
- The concept that technology investments in the Commonwealth support and add value to the business of state government; and,
- The premise that technology investments should be prioritized, executed, and measured based on how they achieve agency and enterprise-wide strategic goals and objectives, and how they serve the critical business needs of the Commonwealth.

1.5 ITIM Stakeholders

ITIM stakeholders are the groups or individuals who have responsibility for activities, decisions, or governance within the ITIM lifecycle. Each stakeholder has an important role in maximizing the business value of IT investments in the Commonwealth.

1.5.1 Secretary of Technology

Commonwealth Technology Management is governed by the Secretary of Technology (Secretary), who sets technology strategy and reviews and prioritizes major technology investments, proposed by Commonwealth executive branch Agencies and institutions of higher education. In the Select Phase of ITIM, the Secretary reviews and approves the Commonwealth Chief Information Officer's (CIO) recommendations to the Governor and General Assembly as to which IT investments the Commonwealth should undertake.

The Secretary approves Project Initiation and termination for high risk and high complexity projects, associated requests for proposal, contracts and procurements, and the six-year Commonwealth Strategic Plan for Information Technology. Decisions regarding termination of high risk and high complexity IT projects at institutions of higher education will be made in consultation with the institution's board of visitors.

In addition, the Secretary reviews the Commonwealth Chief Information Officer's (CIO) recommendations and approves or disapproves all technology management policies, standards, and guidelines, and approves or disapproves procurements, Invitations for Bid (IFB), and Requests for Proposal (RFP) in accordance with *Code of Virginia* requirements.

1.5.2 Commonwealth Chief Information Officer (CIO)

The Commonwealth Chief Information Officer (CIO), as established in the *Code of Virginia*, is appointed by the Governor, and leads the Virginia Information Technologies Agency (VITA.) On behalf of the Governor, the CIO manages a wide variety of technology activities.

The CIO supports Commonwealth agency IT investment decisions during each Phase in the ITIM lifecycle. In the Pre-Select (Identify) Phase, the CIO supports the identification and documentation of agency IT investment business cases in the agency IT strategic plan (ITSP). In the Select Phase, the CIO makes recommendations to the Governor and General Assembly as to which IT investments the Commonwealth should undertake. In the Control Phase, the CIO ensures that IT investments are developed and placed in operation using a disciplined, well-managed, and consistent process. In the Evaluate Phase, the CIO assists agencies by documenting the range of target performance measures established for the investment, as determined in the Control Phase.

In addition, the CIO reviews, and makes recommendations for approval to SoTech all technology management policies, standards, and guidelines, and approves all major IT investments (projects, procurements, Invitations for Bid (IFB), and Requests for Proposal (RFP)) in accordance with *Code of Virginia* requirements.

Other CIO responsibilities include developing procedures and metrics for agency asset portfolio management, the identification of enterprise and collaboration opportunities in IT application investments, and the oversight and management of shared application services.

The CIO supports Commonwealth agency IT investment decisions by providing the opportunity for agencies to use shared application services, providing the business criteria for evaluating enterprise and collaboration opportunities, facilitating agency Asset Portfolio Management processes, and providing oversight for the ITIM Evaluate Phase.

1.5.3 Information Technology Advisory Council (ITAC)

The Information Technology Advisory Council (ITAC) is an advisory council in the executive branch of state government responsible for advising the CIO and the Secretary of Technology on the planning, budgeting, acquiring, using, disposing, managing, and administering of information technology in the Commonwealth.

ITAC supports agency IT investment decisions by advising the CIO on strategies, standards, and priorities for the use of information technology for state agencies, and by advising the CIO on options for assessing and meeting the Commonwealth's business needs through the application of information technology.

1.5.4 Commonwealth Project Management Division (PMD)

The Commonwealth Project Management Division (PMD), as established in the *Code of Virginia*, reports to the CIO and serves as the Commonwealth enterprise program management office. PMD represents the CIO in providing governance and oversight of Commonwealth IT investments, the Commonwealth Project Management Methodology (CPM Methodology), and the Commonwealth Technology Portfolio. Project Management Specialists within PMD consult with agencies and assist them from project and procurement planning approval to close-out and post-implementation review. In addition, PMD reviews project, procurement, IFB, RFP, and strategic planning documentation and prepares recommendations for the CIO and the Secretary as appropriate.

Through the ITIM framework, PMD supports Commonwealth agency IT investment decisions by developing the Project Management Standard, providing guidance for agencies during each phase in the ITIM lifecycle, and providing governance for the ITIM Select and Control Phases.

1.5.5 Commonwealth IT Investment Management Division (ITIMD)

The Commonwealth IT Investment Management Division (ITIMD) reports to the CIO and serves as the Commonwealth's IT investment governance and oversight office. ITIMD manages activities relating to the identification, selection, and evaluation of IT investments, starting with agency IT strategic planning, and assists and oversees the definition of agency business needs and the strategic application of technologies and technology plans to advance projects and procurements that will satisfy those needs. Services include IT strategic planning, IT investment portfolio management, management of the Commonwealth Technology Portfolio, and fiscal analysis. ITIMD consults with agencies and assists them from the evaluation of current technology investments to project and procurement planning approval.

Through the ITIM framework, ITIMD supports Commonwealth agency IT investment decisions by developing the ITIM Standard, and providing guidance and governance during the ITIM Pre-select, Select, and Evaluate Phases.

1.5.6 Commonwealth Secretariats

Commonwealth Secretariats coordinate the activities of agencies in the Secretariat to ensure efficient, effective delivery of services. The Secretary, the leader of a Commonwealth Secretariat, is the principal advisor to the Governor on policy related to the services the Secretariat's agencies provide. The Secretariat is responsible for the formulation of policy related to matters of concern to the Secretariat, and for the execution of approved policy.

Through ITIM, the Commonwealth Secretariats support agency IT investment decisions by determining the overall business priorities for their Secretariat, establishing and prioritizing IT investments during the ITIM Pre-select (Identify) Phase, and acting as a key stakeholder for each major project within the Secretariat during the ITIM Control Phase.

1.5.7 Commonwealth Agencies

Commonwealth agencies are administrative units established by law or by executive order in the executive branch of government responsible for the oversight and administration of specific functions and services. Agencies are the business owners of IT investments in the Commonwealth, and the key stakeholders in the ITIM lifecycle. All ITIM activities are geared toward supporting Commonwealth agency IT investment decisions.

1.5.8 Commonwealth Programs

A program is a group of related projects managed in a coordinated way to obtain business value and control not available from managing the projects individually. Programs may include elements of related work outside of the scope of the discrete projects in the program. A program can be established in a variety of ways:

- By an agency to manage a group of projects collectively;
- By a Secretariat to manage a collection of projects that require collaboration across agency or Secretariat boundaries;
- By the Governor to facilitate enterprise-wide (i.e. state government-wide) productivity and technology improvements, shared services, or collaboration across Secretariat boundaries; or
- By the General Assembly.

Where the CIO has an interest or oversight responsibilities for the IT components of a program, PMD will provide oversight on behalf of the CIO.

1.6 Commonwealth Strategic Planning

Commonwealth agency strategic plans, the Commonwealth Strategic Plan for Information Technology, the long-term objectives set forth by the Council on Virginia's Future, and the Governor's Priority Initiatives are used to ensure that IT directly and measurably supports business goals. Both the Commonwealth strategic planning process and the ITIM process align with the Commonwealth budgeting cycle.

Agencies within the executive branch develop and implement strategic plans and budgets designed to support the achievement of long-term objectives and the fulfillment of agency missions and mandates. In addition, agencies monitor the progress of their plans and make adjustments, as needed, to ensure desired outcomes are achieved. The strategic plan is used to provide guidance to all agency departments. Strategic planning is a management tool used by agency leaders to determine and communicate what the agency wants to accomplish in the upcoming budget biennium, to monitor the agency's overall performance, and to make course corrections to help the agency achieve its strategic goals. Updates to the strategic plans occur in conjunction with key budget events, for example the submission of the Governor's budget to the General Assembly or the passage of the Appropriation Act. Ad hoc strategic planning updates are allowed throughout the year as needed to the IT strategic plan to support changing business priorities.

1.6.1 The Council on Virginia's Future

The Council on Virginia's Future was established on July 1, 2003, to measure Virginia's performance, prioritize future goals, and establish metrics to help measure the Commonwealth's progress toward meeting those goals.

The Council on Virginia's Future promulgates the *Roadmap for Virginia's Future*, a planning and accountability process capable of building and sustaining a consistent focus - throughout all functions and locations of state government - on those things most vital to Virginia's Future. The *Roadmap for Virginia's Future* identifies long term business objectives for the Commonwealth.

For more information about The Council on Virginia's Future, please go to their website at <http://www.future.virginia.gov/>

1.6.2 Commonwealth Technology Business Plan

Developed by ITAC, in consultation with the Council on Virginia's Future, the Commonwealth Technology Business Plan is intended to be the link between the Commonwealth's business priorities and the Commonwealth Strategic Plan for Information Technology, providing business guidance and direction to executive branch agencies' collective technology initiatives.

1.6.3 Commonwealth Strategic Plan for Information Technology

The Commonwealth Strategic Plan for Information Technology specifies the strategic Mission and Vision for information technology in the Commonwealth, and strategic goals for information technology, including objectives, measurements and initiatives that are intended to deliver on that Mission and Vision. The strategic goals align to and support the initiatives identified in the *Commonwealth Technology Business Plan* and the long-term business objectives identified in the *Roadmap for Virginia's Future*.

All Commonwealth agency strategic plans are expected to fully align with the strategic goals, objectives, measurements, and initiatives identified in the Commonwealth Strategic Plan for Information Technology.

1.6.4 Commonwealth Enterprise Architecture (EA)

Commonwealth Enterprise Architecture (EA) is a fundamental factor in developing and monitoring strategic planning for information technology. To ensure that EA and information technology support the business of the Commonwealth, an EA process model has been adopted that continually integrates and synchronizes appropriate technologies so that they best serve the business of state government and the citizens of the Commonwealth. In this process model, business needs drive what is done in the Commonwealth and enterprise architecture determines how information technology supports those business needs.

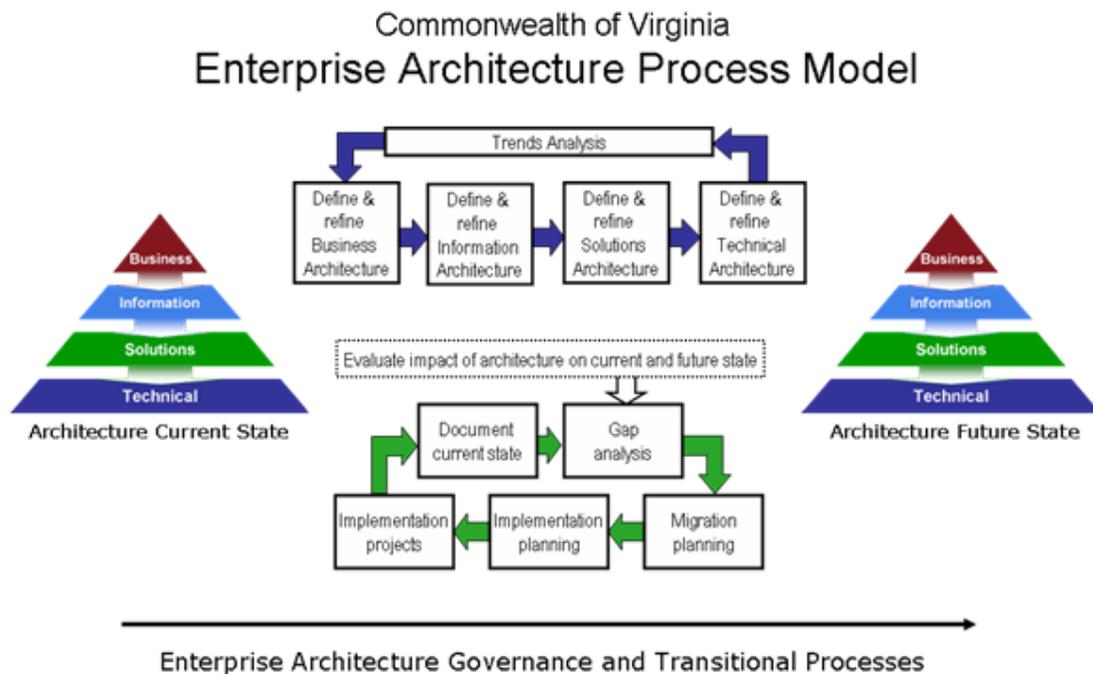


Figure 3: Enterprise Architecture Process Model

For more information about EA, please go to the VITA website at <http://www.vita.virginia.gov/oversight/default.aspx?id=349>.

1.6.5 Commonwealth Technology Portfolio (CTP)

The Commonwealth Technology Portfolio (CTP) is the executive branch repository for technology investments, and is an aggregated view of individual agency projects and assets supporting Commonwealth and agency business strategies. The CTP documents the current "as-is" view of projects and assets, and facilitates selection of technology investments for the migration to the "to-be" enterprise architecture. The selection of technology investments, and migration to the "to-be" architecture, begins with a comprehensive analysis of the current ("as-is") technology portfolio. When the "as-is" state is understood, the Commonwealth can evaluate the ability of the portfolio to meet the strategic goals and objectives, and/or address critical business needs, and select IT investments that best support agency missions and the business activities of the Commonwealth.

1.6.6 Agency IT Strategic Plan (ITSP)

The agency IT Strategic Plan (ITSP) is a collaborative effort between the business and IT leaders within the agency, and is comprised of the *Resources: Information Technology Summary* and the *Appendix A: Information Technology* sections of the Agency Strategic Plan. The ITSP is the primary tool for communicating how agency business needs drive IT investment decisions, and how the agency's IT investments support the business goals and objectives of the agency and the Commonwealth. The ITSP provides a detailed view of agency IT investments, identifies the alignment of each individual IT investment to the agency's service area objectives and "as-is" business architecture, and provides additional information for each investment (i.e., costs, start and end dates, service area owner, etc.)

1.6.7 Agency Technology Portfolio (ATP)

The Agency Technology Portfolio (ATP) is a best practice of keeping a central repository for all the IT investment information the agency needs to manage. If all of an agency's IT investment management information is documented in the CTP, the agency can use the CTP in lieu of maintaining a separate ATP. However, if an agency has IT investments that are not documented in the CTP, then a separate ATP is highly recommended. The size and complexity of the ATP depends on the scope of the agency's IT investments: an agency with relatively few IT investments outside the CTP may be able to manage their ATP using a spreadsheet, while an agency with significant IT investments outside the CTP may need to use a portfolio management tool to manage their ATP. While an ATP is not required, its use to support agency IT investment decisions is strongly encouraged.

2. MEASURING IT INVESTMENT VALUE

2.1 What is Value?

Value is a measure that demonstrates how an IT investment contributes to improved constituent service levels, agency operational efficiencies, and the strategic goals of the Commonwealth. IT investments may have multiple value measures in one, two, or all three value categories. Some value measures may even apply to two or even three categories.

The Commonwealth uses the measurement of an IT investment's value as a way to quantify agency business benefits and track them throughout the IT investment lifecycle. Measuring IT investment value with a focused, standardized set of evaluation criteria allows the Commonwealth to forecast value during investment business case development and investment selection.

2.1.1 Constituent Service

Constituent service is the measure of how well an IT investment helps the citizens of the Commonwealth. This can include offering financial benefits such as lower cost of interaction, reduced fees, or quicker reimbursements. It can also include service improvements such as reduced wait times, improved access, new services leading to constituent benefits, or a greater focus on constituent needs.

2.1.2 Operational Efficiency

Operational efficiency is the measure of an IT investment's capability to reduce agency operational and inventory costs, or provide other financial benefits such as streamlined supply chains, new revenue streams, higher productivity, error reductions, faster merging of administrative processes, or an improvement in agency performance against Department of Planning and Budget (DPB) Productivity Measures.

2.1.3 Strategic Alignment

Strategic alignment is the measure of an IT investment's support for Commonwealth goals and objectives as expressed in the individual agency strategic plans, the Commonwealth Strategic Plan for Information Technology, the Governor's Initiatives, federal and state mandates, and the Commonwealth's Enterprise Architecture. It also includes the applicability of the investment across the enterprise.

2.2 Using Value and Risk to Make IT Investment Decisions

One of the primary goals of ITIM is to support value-based agency IT investment decisions, and the use of value and risk can be tracked across the entire ITIM cycle. In the Pre-select (Identify) Phase, the value of an IT investment in serving an agency business need is compared to the IT investment's risks as illustrated in the example IT investor map below. In the Select Phase, IT investments are ranked based on their proposed value relative to risk and the investments with the best ranking are chosen for implementation. In the

Control Phase, IT investment values are refined and risks are mitigated in conjunction with asset delivery. And in the Evaluate Phase, IT asset performance is measured against value metrics to determine if the investment is meeting the agency's business needs.

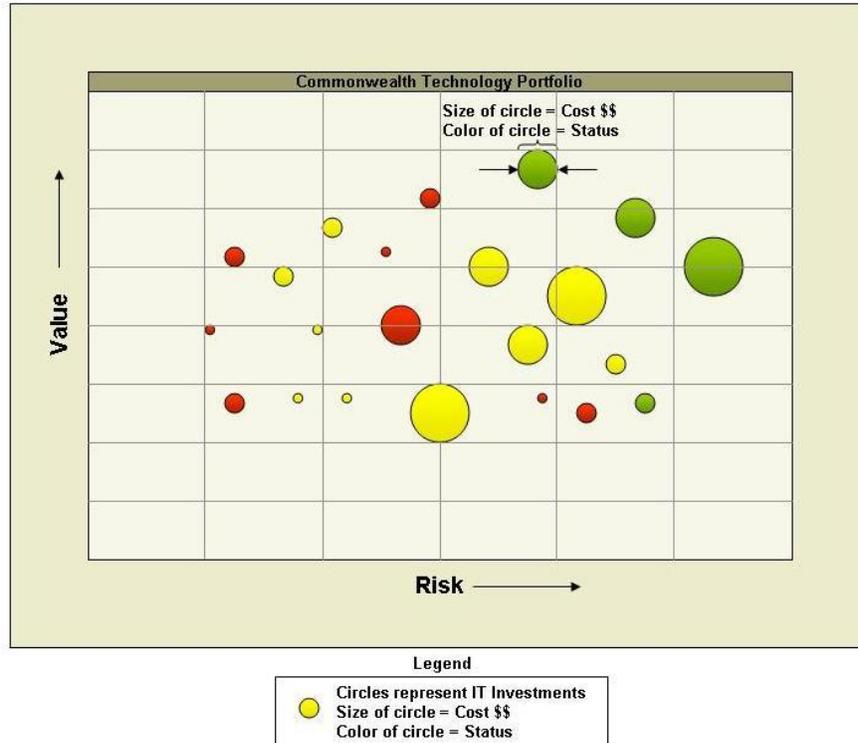


Figure 4: Example IT Investor Map Showing Value vs. Risk

3. PORTFOLIO MANAGEMENT

3.1 What is Portfolio Management?

In a manner similar to managing a collection of financial investments contained in a financial portfolio, the Commonwealth uses portfolio management techniques to manage IT investments across the ITIM process. The CTP is the executive branch repository for IT investments, and is an aggregated view of individual agency IT investments supporting Commonwealth and agency business strategies. The CTP contains investments in current IT assets and projects to deliver new IT assets. IT investments are managed across the four ITIM phases by executing two cycles of activities in the CTP: Project Portfolio Management and Asset Portfolio Management.

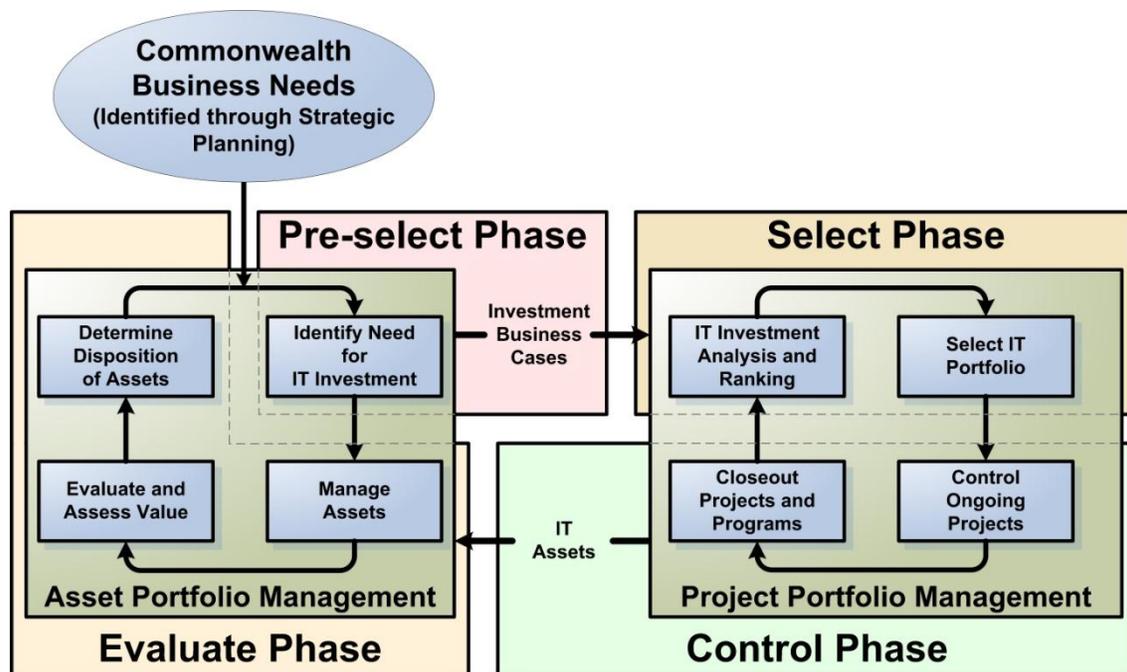


Figure 5: ITIM, APM, and PPM

3.2 Commonwealth Project Portfolio Management (PPM)

Commonwealth Project Portfolio Management (PPM) is a cycle of activities directed by the *Code of Virginia* and aligned with industry best practices that the Commonwealth uses for governing and executing current or proposed IT investments. The fundamental objective of the PPM cycle is to determine the optimal mix and sequencing of IT investments and control their delivery to best achieve the Commonwealth's overall goals.

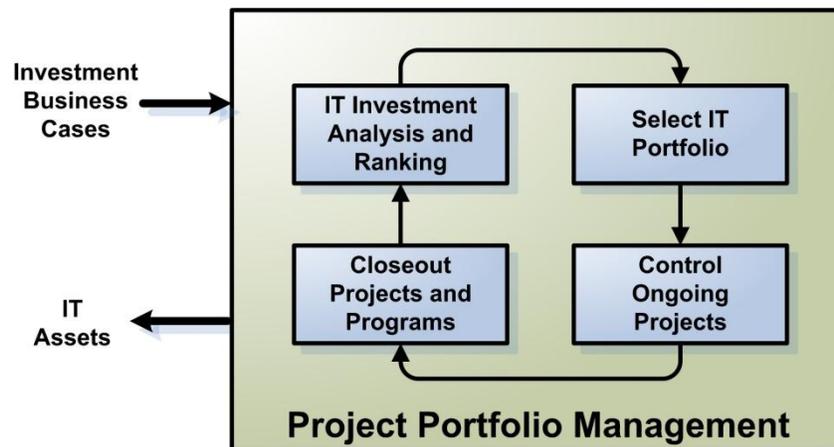


Figure 6: The PPM Lifecycle

PPM supports ongoing measurement of the project portfolio so each IT investment can be monitored for its relative contribution to business goals and improving business value.

3.2.1 IT Investment Analysis and Ranking

During the IT Investment Analysis and Ranking Phase of PPM, all of the agency investment business cases are collected from their agency ITSPs. At the direction of the CIO, PMD and ITIM, conduct analysis on project IT investment business cases based on the relative value the IT investments provide to the Commonwealth. Major IT investments are then ranked by value in the draft Recommended Technology Investment Projects Report (RTIP Report) and presented to the CIO for review.

3.2.2 Select IT Portfolio

During the Select IT Portfolio Phase of PPM, the CIO and Secretary of Technology review the draft RTIP Report, and the value provided by each IT investment, and select which IT investments will be ranked in the final RTIP Report. The CIO then submits the final RTIP Report, including recommended priorities for funding the projects, to the Governor and General Assembly. This submission is due each September 1 as required by the *Code of Virginia*.

3.2.3 Control Ongoing Projects

During the Control Ongoing Projects Phase of PPM, executive branch agencies use the CPM Methodology identified in the PM Standard to manage the CIO-approved projects in the CTP. The CPM Methodology is used by the CIO and the Secretariats to ensure that Commonwealth projects are managed on time, on budget, and within scope against a managed baseline.

3.2.4 Closeout Project and Programs

During the Closeout Project and Programs Phase of PPM, project and programs are closed out and agencies accept the deliverables. When the operational products or services are established, the project oversight authority concludes that the project or program has satisfied its purpose as described in the CTP. Projects and programs also deliver a set of performance metrics for each IT asset at closeout. The performance metrics are documented in the ATP and used by the agency during the Asset Portfolio Management lifecycle to evaluate the degree to which the asset serves the agency's business needs.

3.3 Commonwealth Asset Portfolio Management (APM)

Commonwealth Asset Portfolio Management (APM) is a cycle of activities aligned with industry best practices that the Commonwealth uses for evaluating the performance of IT assets and linking investments in IT assets to business needs. The objective of the APM cycle is to realize optimal value from IT investments. APM supports ongoing measurement of IT investment performance to ensure the asset's contribution to business goals and improving business value.

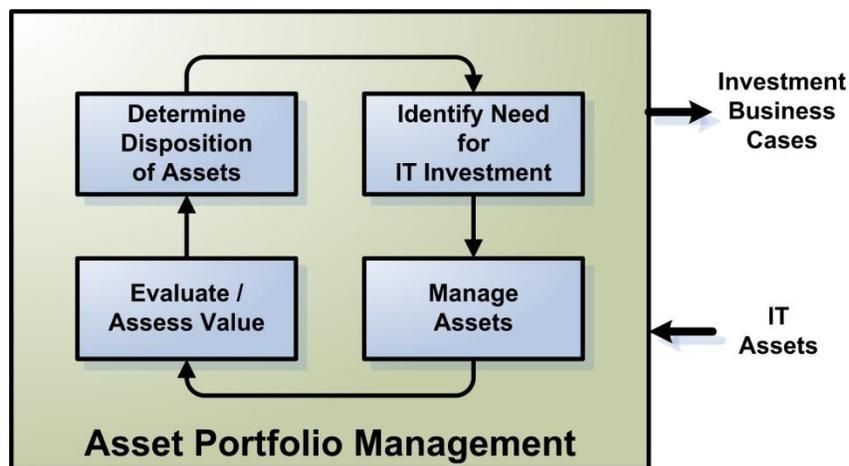


Figure 7: The APM Lifecycle

APM is conducted using two parallel cycles of asset management activities: Infrastructure Service Portfolio Management and Solutions Portfolio Management. To facilitate APM activities, agencies are strongly encouraged to maintain an ATP as a central repository for all the asset management information the agency needs for each of the agency's IT investments.

3.3.1 Infrastructure Service Portfolio Management (ISPM)

Commonwealth Infrastructure Service Portfolio Management (ISPM) is a subset of APM that the Commonwealth uses for evaluating the performance of agency infrastructure services and linking infrastructure investments to agency business needs.

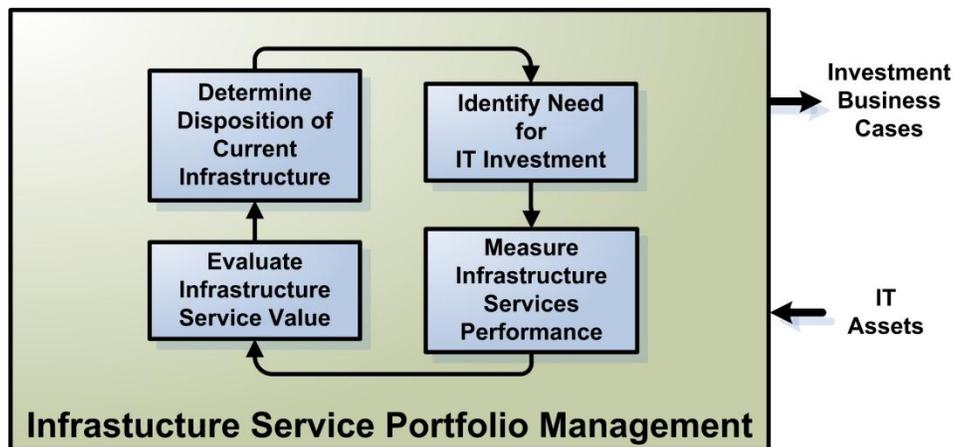


Figure 8: The ISPM Lifecycle

ISPM includes both specialized infrastructure managed by the agencies and infrastructure services managed through the Commonwealth's IT Partnership.

3.3.1.1 Measure Infrastructure Services Performance

During the Measure Infrastructure Services Performance Phase of ISPM, agencies systematically collect, record, and report information on the performance of all IT infrastructure services in their ATP. All infrastructure services in the ATP, whether managed through the IT Partnership or managed by the agency, should have service level performance measures assigned to them, and the performance measures should be directly tied to the business needs of the agency and the value the investment provides to the Commonwealth. For guidance on performance measures please see the Strategic Planning section of the DPB website at <http://dpb.virginia.gov/sp/sp.cfm>.

3.3.1.2 Evaluate Infrastructure Service Value

During the Evaluate Infrastructure Service Value Phase of ISPM, the agency compares the results of the infrastructure service performance measurements gathered in the first ISPM phase to the service level agreements documented in the ATP. Corrective actions are developed as needed to bring infrastructure services into alignment with their service levels. In addition, trends in infrastructure service performance are compared to trends in infrastructure service costs to determine if there is a gap between the projected business value of the infrastructure service and the agency's business needs as documented in the Agency Strategic Plan.

3.3.1.3 Determine Disposition of Current Infrastructure

During the Determine Disposition of Current Infrastructure Phase of ISPM, agency leadership determines the disposition of infrastructure services currently in the ATP based on the analysis conducted in the Evaluate Infrastructure Service Value Phase. The disposition of a current infrastructure services falls into one of four categories:

1. **Maintain**—continue to sustain infrastructure services that will meet or exceed the business needs of the agency;

2. **Migrate**—modify the use of infrastructure services that are not meeting their target agency business need to address a different agency business need;
3. **Improve**—reengineer or otherwise modernize infrastructure services that are not meeting their target agency business need to successfully address that need; or,
4. **Retire**—withdraw from service infrastructure services that do not justify maintenance, migration, or improvement due to limited business value. Infrastructure services are retired when the retirement produces more business value than the other three disposition options.

3.3.1.4 Identify Business Need for IT Investment

During the Identify Business Need for IT Investment Phase of ISPM, agency leadership assesses the agency's business needs and identifies all opportunities for business investment. Agency leadership then examines the opportunities and determines if an IT investment offers a possible solution. The agency then identifies each potential IT investment in their agency's ITSP. The inclusion of the potential IT investment in the ITSP is the first step in obtaining an IT solution whether the solution is provided through VITA or obtained through the procurement, IFB, or RFP process.

3.3.2 Solutions Portfolio Management (SPM)

Commonwealth Solutions Portfolio Management (SPM) is a subset of APM that the Commonwealth uses for evaluating the performance of agency applications and linking application investments to agency business needs.

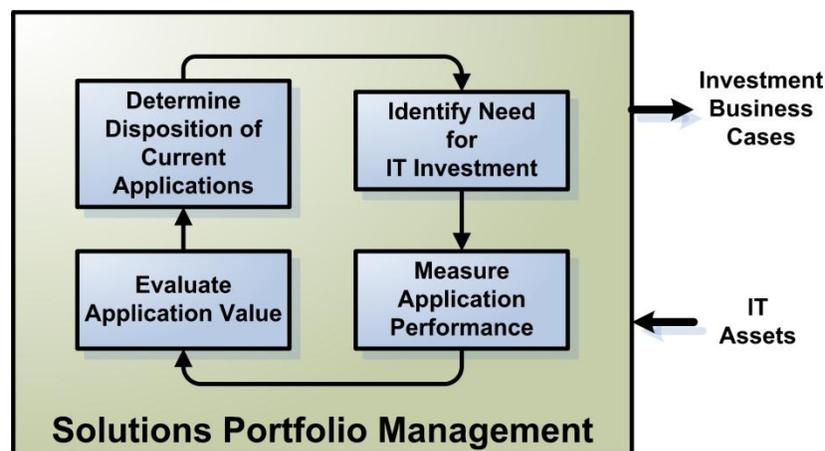


Figure 9: The SPM Lifecycle

SPM includes both specialized applications managed by the agencies and application services managed through the Commonwealth's IT Partnership.

3.3.2.1 Measure Application Performance

During the Measure Application Performance Phase of SPM, agencies systematically collect, record, and report information on the performance of all IT applications in their ATP. All IT applications in the ATP should have performance measures assigned to them, and the

performance measures should be directly tied to the business needs of the agency and the value the investment provides to the Commonwealth. For applications delivered through the CPM Methodology, the proposed range for each performance measure is included in the investment business case, and the specific performance measures are documented in the project's Closeout Report. For guidance on performance measures please see the Strategic Planning section of the DPB website at <http://dpb.virginia.gov/sp/sp.cfm>.

3.3.2.2 Evaluate Application Value

During the Evaluate Application Value Phase of SPM, the agency compares the results of the application performance measurements gathered in the Measure Application Performance Phase to the target performance measures documented in the ATP. Corrective actions are developed as needed to bring applications into alignment with their expected performance targets. In addition, trends in application performance are compared to trends in application costs to determine if there is a gap between the projected business value of the application and the agency's business needs as documented in the agency strategic plan.

3.3.2.3 Determine Disposition of Current Applications

During the Determine Disposition of Current Applications Phase of SPM, agency leadership determines the disposition of applications currently in the ATP based on the analysis conducted in the Evaluate Application Value Phase. The disposition of a current application falls into one of four categories:

1. **Maintain**—continue to sustain applications that will meet or exceed the business needs of the agency;
2. **Migrate**—modify the use of applications that are not meeting their target agency business need to address a different agency business need;
3. **Improve**—reengineer or otherwise modernize applications that are not meeting their target agency business need to successfully address that need; or,
4. **Retire**—withdraw from service applications that do not justify maintenance, migration, or improvement due to limited business value. Applications are retired when the retirement produces more business value than the other three disposition options.

3.3.2.4 Identify Business Need for IT Investment

During the Identify Business Need for IT Investment Phase of SPM, agency leadership assesses the agency's business needs and identifies all opportunities for business investment. Agency leadership then examines the opportunities and determines if an IT investment offers a possible solution. The agency then identifies each potential application investment in their agency's ITSP. The inclusion of the potential application investment in the ITSP is the first step in obtaining the application whether it is provided through VITA or obtained through the procurement, IFB, or RFP process.

4. PHASES OF ITIM

4.1 Pre-select (Identify) Phase

The purpose of the Pre-Select (Identify) Phase is to identify, analyze, and document IT investments that support agency business needs in the context of Commonwealth business needs. The Pre-Select (Identify) Phase allows agencies to define business objectives, associate costs with the potential IT investments needed to meet those business objectives, and document a range of performance measures for their potential IT investments. Completion of this phase answers the question "What proposed IT investments potentially solve agency business needs?"

4.1.1 Pre-select (Identify) Phase Requirements

The high-level requirements of the Pre-Select (Identify) Phase and their relationship to the APM and PPM lifecycles are illustrated below.

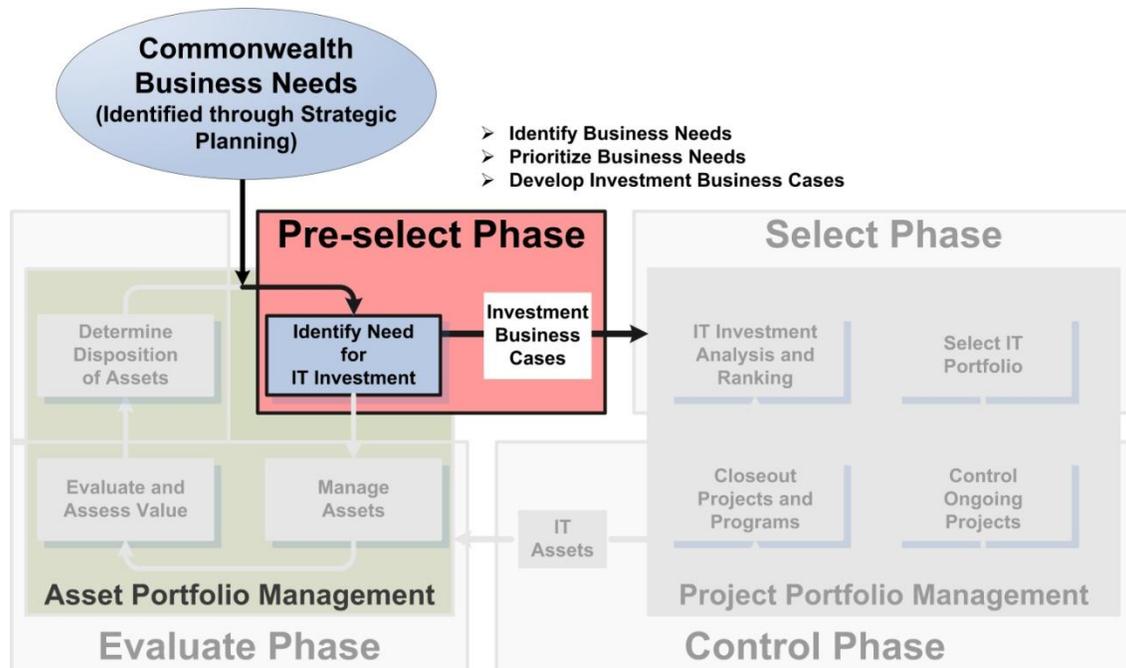


Figure 10: Pre-Select (Identify) Phase

4.1.1.1 Identify Business Needs

A key outcome of the agency IT strategic planning process is the identification of new business needs that can be met with potential IT investments. This is combined with the results of the agency's identification of business needs and investment opportunities from the APM process to derive a list of IT investment opportunities. The agency may identify

additional IT investment opportunities from the Commonwealth Strategic Plan for Information Technology, the Commonwealth Technology Business Plan, the long-term objectives set forth by the Council on Virginia's Future, and the Governor's Priority Initiatives.

4.1.1.2 Prioritize Business Needs

Agencies frequently will not have the resources to undertake all of the IT investment opportunities identified in their strategic plans, therefore, agencies must review and rank potential IT investments according to their business priorities. In determining business priorities, agencies draw information from their Agency Strategic Plan and their Secretariat.

4.1.1.3 Develop Investment Business Cases

The final requirement in the Pre-Select Phase is to develop the Investment Business Case (IBC) for each potential investment not currently identified in the CTP, and to add the IBC to the Agency Strategic Plan. The IBC provides, at a high level and in a standardized format, the information necessary to evaluate a potential IT investment in the ITIM Select Phase. The IBC must include a range of target performance measures that will be refined during the ITIM Control Phase and used in the ITIM Evaluate Phase.

4.1.2 Pre-select (Identify) Phase Roles and Responsibilities

The roles and responsibilities of the stakeholders in the ITIM lifecycle are documented in both the *Code of Virginia* and in Commonwealth standards. The following is a summary of the major stakeholder roles and responsibilities for the ITIM Pre-Select (Identify) Phase.

Role	Pre-select (Identify) Phase Responsibilities
Secretary of Technology	<ul style="list-style-type: none"> • Establish business priorities for the Technology Secretariat; • Approve the six-year Commonwealth Strategic Plan for Information Technology; and, • Review and approve statewide technical and data standards for information technology and related systems, including the utilization of nationally recognized technical and data standards for health information technology systems or software purchased by a state agency of the Commonwealth.

Role	Pre-select (Identify) Phase Responsibilities
CIO	<ul style="list-style-type: none"> • Define criteria for evaluating Commonwealth IT investments; • Review and approve all state agency and public institution of higher education information technology plans; • Evaluate and recommend approval or disapproval of the IT components of agency strategic plans or IT investment changes to agency strategic plans; • Develop the six -year Commonwealth Strategic Plan for Information Technology, update the Plan annually, and submit to the Secretary for approval; • Plan and forecast future needs for information technology and conduct studies and surveys of organizational structures and best management practices of information technology systems and procedures; • Assist state agencies and public institutions of higher education in the development of information management plans and the preparation of budget requests for information technology; • Develop statewide technical standards for information technology and related systems; and • Define the Commonwealth's "as-is" and "to-be" Enterprise Architecture.
ITAC	<ul style="list-style-type: none"> • Advise the CIO on developing the six-year Commonwealth Strategic Plan for Information Technology; • Advise the CIO on strategies for the use of information technology for state agencies in the executive branch of state government; and, • Advise the CIO on assessing and meeting the Commonwealth's business needs through the application of information technology.
PMD	<ul style="list-style-type: none"> • Evaluate all IT investments that qualify as Commonwealth Technology Portfolio investments according to approved criteria; • Review agency and public institution of higher education information management and information technology plans and recommend approval or disapproval to the CIO; • Monitor agency and public institution of higher education implementation of information management and information technology plans and periodically report findings to the CIO; and, • On an ongoing basis, evaluate IT investment changes to agency and public institution of higher education strategic plans and recommend for approval or disapproval to the CIO.
ITIMD	<ul style="list-style-type: none"> • Evaluate all IT investments that qualify as Commonwealth Technology Portfolio investments according to approved criteria; • Every two years, as part of the budget process, evaluate agency and public institution of higher education Information Technology Strategic Plans (ITSP) and recommend approval or disapproval to the CIO; and, • Insure all agencies and public institutions of higher education under oversight and governance have a CIO-approved ITSP.
Secretariat	<ul style="list-style-type: none"> • Establish business priorities for their Secretariat.

Role	Pre-select (Identify) Phase Responsibilities
Agency	<ul style="list-style-type: none"> • Identify business needs and prioritize potential investments; • Document target performance metrics and identify business value for potential investments in Investment Business Cases; • Research possible enterprise or collaboration opportunities for the agency; and • Update the Agency Strategic Plan and Agency Technology Portfolio with IT Investment Business Cases, identified business needs, and identified value for each potential investment.
Program	<ul style="list-style-type: none"> • Advise Secretariats and agencies on Investment Business Cases for potential IT investments that can be managed within the scope of the program.

For ease of reference, the appendices enumerate ITIM Phase requirements by stakeholder.

4.2 Select Phase

The purpose of the Select Phase is to decide from among the investments identified in the Pre-Select (Identify) Phase, and investments in the current CTP, which investments best support:

1. The agency's mission, strategic goals, and mandates;
2. The Commonwealth Strategic Plan for Information Technology;
3. The long-term objectives for the Commonwealth identified in the *Roadmap for Virginia's Future*; and
4. The Governor's Priority Initiatives.

In the Select Phase, all major IT project investments are scored and ranked by their business value, in conjunction with the Commonwealth budget development cycle, to determine which investments are to be recommended for funding by the CIO to the Governor and General Assembly on September 1 of each year.

The IBC for a proposed IT investment is initially evaluated and scored by the agency. The scores from the proposed IT investments are then analyzed along with the scores from the agency's on-going IT investments. Based on the agency internal analysis, the agency ranks all its IT investments and subsequently selects the investment business cases to include in the Agency Strategic Plan. Once the agency selects its investment business cases, proposed investments that qualify as Commonwealth investments are identified for evaluation and approval at the Commonwealth level. Completion of the Select Phase answers the question "What IT investments best meet the business needs?"

4.2.1 Select Phase Requirements

The high-level requirements of the Select Phase and their relationship to the APM and PPM lifecycles are illustrated below.

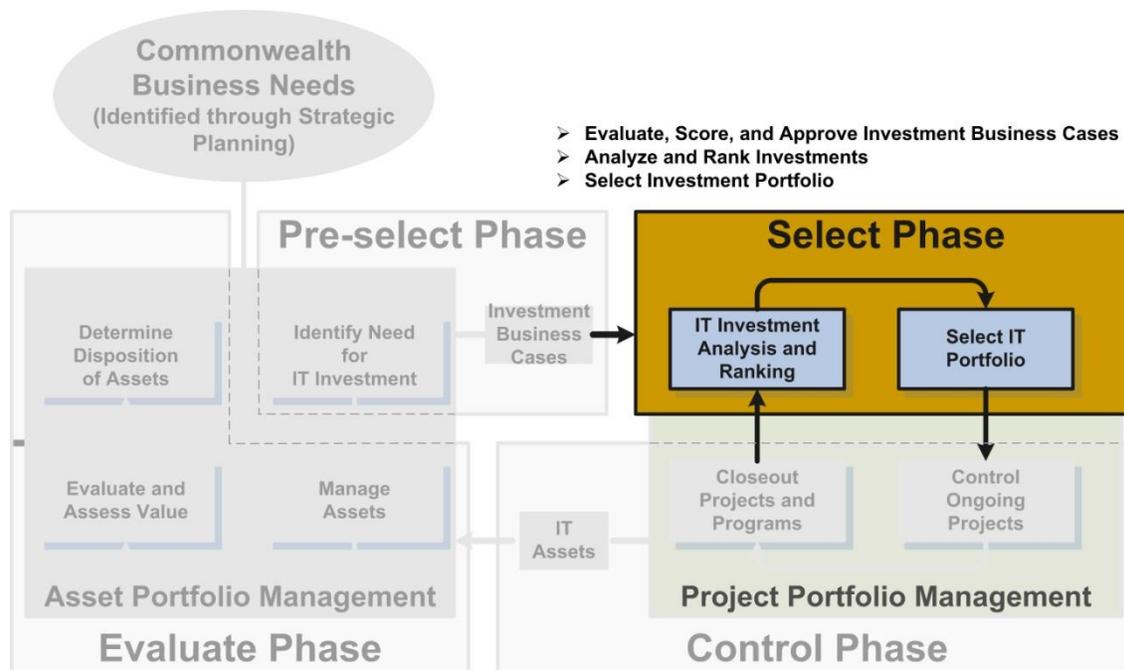


Figure 11: Select Phase

4.2.1.1 Evaluate, Score, and Approve Investment Business Cases

After IT investments are identified based on business needs, each IBC will be evaluated, scored, and approved. At the agency level, it is highly recommended that the agencies use the Commonwealth's evaluation and scoring criteria, as established by the CIO, to demonstrate how IT investments contribute to improved constituent service levels, agency operational efficiencies, and the strategic goals of the Commonwealth. The evaluation and scoring procedures contained in the Commonwealth IT portfolio management tool workflow must be used for agency proposed investments that qualify as Commonwealth investments. Commonwealth IT investments are defined as IT projects with a cost greater than \$250,000, or IT procurements with a cost greater than \$100,000. The results of the agency evaluation and scoring activities should be documented in the ATP.

Commonwealth IBCs must be evaluated and approved by the CIO prior to inclusion in the CTP. PMD administers the evaluation and approval process using the Commonwealth IT portfolio management tool workflow.

The final output from this evaluation and approval process is a decision on whether a proposed investment is:

- Identified for Preliminary Planning (IPP)—A project portfolio category for projects that address an agency business need, but which require additional effort by the agency or further review by the CIO before the expenditure of funds will be authorized;
- Investment Business Case Approval (IBC)—A project portfolio category for projects that have received approval of the project's investment business case from the CIO. IBC approval authorizes the agency to expend funds in preparation for project initiation approval; or

- Disapproved.

Agency approving authorities will make appropriate decisions for IT projects and that do not exceed \$250,000 or procurements that do not exceed \$100,000. The CIO will make appropriate decisions for IT projects over \$250,000 and procurements over \$100,000.

Commonwealth IT investments which are given IPP status or disapproved will include a CIO rationale for the decision. IPP and disapproved potential IT investments may be re-submitted by the agency, with additional information that addresses the CIO concerns, for further consideration by the CIO.

4.2.1.2 Analyze and Rank Investments

The next requirement in the Select Phase is to analyze all the approved IT investments in the portfolio and rank them in order by business value. At the agency level, the final output from this activity will be an agency-ranked investment portfolio reviewed and approved by the agency approving authority.

At the Commonwealth level, PMD uses the measurement of an IT investment's value as a way to quantify agency business benefits, and will make a recommendation to the CIO on the rank order for all Major IT projects that have been granted APP status on a quarterly basis.

Analysis of the CTP must follow the Commonwealth IT portfolio management tool workflow.

4.2.1.3 Select Investment Portfolio

The final requirement in the Select Phase is to select and approve the IT investment portfolio. The agency portfolio will be approved by the agency approving authority. The CTP must be documented in the Commonwealth IT portfolio management tool. The CIO will review a final RTIP Report, with Major IT Projects ranked by business value and recommended priorities for funding major IT projects, and submit it to the CIO. The CIO will approve or disapprove priorities and funding for Commonwealth investments in the RTIP Report and submit their recommendation to the Governor and General Assembly by September 1 of each year.

4.2.2 Select Phase Roles and Responsibilities

The roles and responsibilities of the stakeholders in the ITIM lifecycle are documented in both the *Code of Virginia* and in Commonwealth standards. The following is a summary of the major stakeholder roles and responsibilities for the ITIM Select Phase.

Role	Select Phase Responsibilities
Secretary of Technology	<ul style="list-style-type: none"> • Review and approve the procurement of agency technology projects; and, • Prioritize the Secretariats' Major IT Projects.

Role	Select Phase Responsibilities
CIO	<ul style="list-style-type: none"> • Review agency IT budgets and make recommendations to the Department of Planning and Budget (DPB); • Build and maintain a Commonwealth Technology Portfolio (CTP) to include both assets and projects; • Review and approve for planning all IT projects over \$250,000 and procurements over \$100,000; and • Review Commonwealth IT portfolio analysis, accompanying documents, and the recommended Commonwealth IT portfolio and submit the annual RTIP Report, with recommended priorities for funding projects, to the Secretary prior to submitting the RTIP to the Governor and the General Assembly by September 1 of each year.
ITAC	<ul style="list-style-type: none"> • Advise the CIO on the prioritization of enterprise-wide technology applications; and, • Advise the CIO on priorities for the use of information technology for state agencies in the executive branch of state government.
PMD	<ul style="list-style-type: none"> • Provide ongoing assistance and support to state agencies and public institutions of higher education in the development of information technology projects; • Review agency IT investments and recommend planning approval or disapproval to the CIO; • Evaluate, score, and rank all major IT projects according to the approved criteria and submit a recommendation for funding to the CIO; and, • Review and approve agency IT budget recommendations to the CIO.
ITIMD	<ul style="list-style-type: none"> • Prepare the Annual Recommended Technology Investment Projects (RTIP) Report and provide a quarterly update; • Obtain CIO approval of the RTIP Report with recommended priorities for funding projects; and, • Obtain CIO key themes and messages and prepare the RTIP Report for delivery to the Governor and General Assembly on September 1 of each year.
Secretariat	<ul style="list-style-type: none"> • Prioritize the Secretariat's Major IT Projects.
Agency	<ul style="list-style-type: none"> • Establish a process for evaluating, scoring, and ranking IT investments for the agency; and, • Prioritize agency IT Projects.
Program	<ul style="list-style-type: none"> • Provide evaluation, scoring, ranking and investment business case information for IT projects and procurements that can be managed within the program as needed.

For ease of reference, the appendices enumerate ITIM Phase requirements by stakeholder.

4.3 Control Phase

The purpose of the Control Phase is to ensure, through timely oversight, quality control, and executive review, that IT investments are developed and placed in operation using a disciplined, well-managed, and consistent process. During this process, the progress and performance of IT investment initiatives are regularly monitored against projected cost, schedule, and performance metrics, in accordance with the investment's planned review schedule. When issues or problems are identified, corrective action is taken. The Control Phase is characterized by decisions to continue, modify, or terminate investment initiatives.

Decisions are based on reviews at key milestones during the investment lifecycle and reviews conducted on pre-defined periodic schedules. The focus of these reviews changes and expands as the investment moves through the investment lifecycle, and as projected investment costs and benefits change. Completion of the Control Phase answers the question “Are the initiatives for developing and placing the selected IT investments into operation performing as planned?”

4.3.1 Control Phase Requirements

The high-level requirements of the Control Phase and their relationship to the APM and PPM lifecycles are illustrated below.

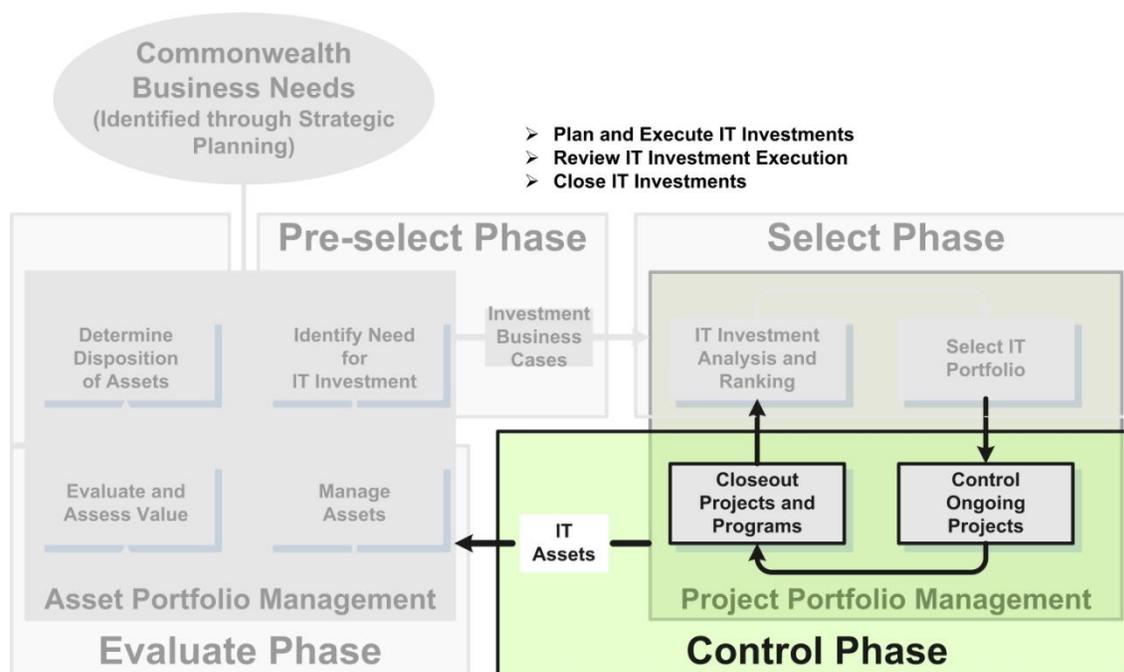


Figure 12: Control Phase

4.3.1.1 Plan and Execute IT Investments

After an investment is initiated in the Control Phase, it must be planned and executed in accordance with Commonwealth standards. IT projects that have received Development Approval are governed by the Commonwealth Project Management Standard. IT contracts must be obtained through an approved Agency Procurement Request (APR) and are governed by the *VITA IT Procurement: Authority and Delegation Policies*. The agency planning and executing the IT investment must ensure that the business value of the IT investment is translated into concrete asset performance measures. The performance measures will be assessed throughout the lifecycle of the IT investment to ensure the Commonwealth is receiving the desired business value. The CIO has established a Commonwealth IT portfolio management tool to assist stakeholders with planning, executing, and documenting IT investments.

4.3.1.2 Review IT Investment Execution

The *Code of Virginia* requires proper oversight and governance over the planning and execution of IT investments. Stakeholder roles and responsibilities for projects are documented in the Commonwealth Project Management Standard. At minimum, a monthly review of Major IT investments is required; a monthly review of all IT investments is strongly recommended. All Commonwealth IT investments must be documented in the CTP. The CIO will review the performance of Commonwealth Major IT Projects in a quarterly update to the RTIP Report that includes:

- IT investment status as it relates to cost, schedule and scope;
- Significant changes since the last report;
- Identification of underperforming investments;
- Recommended remediation plans;
- Remediation plan status (if required); and,
- Recommendations to continue, modify or terminate each investment.

In addition, the following stakeholders review updates to the CTP on a quarterly basis:

- CIO
- Secretary of Technology
- Governor
- Information Technology Advisory Council (ITAC)
- Joint Legislative Audit and Review Commission (JLARC)
- Auditor of Public Accounts (APA)
- House Appropriations Committee
- Senate Finance Committee
- Joint Commission on Technology and Science (JCOTS)

4.3.1.3 Close IT Investments

The final requirement in the Control Phase is to close all IT investments. Major and non-major IT projects, procurements, contracts and requests for service must be closed out in accordance with Commonwealth standards and guidelines. During this point in the IT investment lifecycle, it is important to document lessons learned, produce final closeout reports, and ensure contractual requirements have been met. As part of this requirement, stakeholders should update the IT asset performance measures and document them in the agency ATP if available.

4.3.2 Control Phase Roles and Responsibilities

The roles and responsibilities of the stakeholders in the ITIM lifecycle are documented in both the *Code of Virginia* and in Commonwealth standards. The following is a summary of the major stakeholder roles and responsibilities for the ITIM Control Phase.

Roles	Control Phase Responsibilities*
Secretary of Technology	<ul style="list-style-type: none"> • Review and approve the termination of major information technology projects; and, • Review, approve, and comment on monthly status reports, baseline adjustments greater than 10%, and IV&V reports for each active Major IT Project as needed.
CIO	<ul style="list-style-type: none"> • Review and grant Development Approval or disapproval of Major and Non-Major IT Projects and procurements; • Appoint an Internal Agency Oversight Committee (IAOC) for each Major IT project to provide oversight and direction to the project for which they are chartered and participates (or appoints a representative) as a voting member on the Proponent Secretariat Oversight Committee (PSOC) for Major IT projects; and • Approve, as a part of the project plan, the target asset performance measures to be used in the asset's Post Implementation Review (PIR).
ITAC	<ul style="list-style-type: none"> • Advise the CIO on the development of all major information technology projects; and, • Advise the CIO on the development and implementation of enterprise-wide technology applications.
PMD	<ul style="list-style-type: none"> • Provide oversight and governance on all Commonwealth IT Projects; • Provide appropriate reports to the CIO in accordance with the <i>Code of Virginia</i>; and • Ensure projects are being run in accordance with statewide technical and data standards for information technology and related systems.
ITIMD	<ul style="list-style-type: none"> • On behalf of the CIO, support agency use of a Commonwealth Technology Portfolio that includes agency IT projects.
Secretariat	<ul style="list-style-type: none"> • Review, approve, and comment on monthly status reports, baseline adjustments greater than 10%, and IV&V reports for each active Commonwealth IT project as needed.
Agency	<ul style="list-style-type: none"> • Translate business value into asset performance measures; • Develop detailed project plans and execute projects as directed in the Commonwealth Project Management Standard; • Develop applications and application modifications in accordance with statewide technical and data standards for information technology and related systems; and • Prepare and submit monthly status reports, requests for baseline adjustments greater than 10%, and IV&V reports for each Major IT Project (as scheduled).
Program	<ul style="list-style-type: none"> • Manage projects within the scope of the program in a coordinated way to obtain business value and control not available from managing the projects individually.

* Other requirements are documented in the Commonwealth of Virginia ITRM Project Management Standard and the *Code of Virginia*.

For ease of reference, the appendices enumerate ITIM Phase requirements by stakeholder.

4.4 Evaluate Phase

The purpose of the Evaluate Phase is to compare the actual performance results and benefits of an investment to both the range of target performance measures that were initially projected in the IBC and refined in the Control Phase, and the risks of operating and maintaining the asset, such as reliability, impact of failure, and cost of failure mitigation. The Evaluate Phase includes all agency IT assets that have been in operation six or more months.

In the Evaluate Phase, new assets receive a Post Implementation Review (PIR). The PIR is an evaluation process that compares the expected results before the implementation of a project (as identified in the IBC and Control Phase) with the actual performance achieved by the IT asset. In addition, the key performance metrics of the assets are monitored at regular intervals and "out of bounds" performance statistics trigger in-depth review and analysis.

Evaluate Phase performance measurements are collected and evaluated by the agency and reported to agency leadership. The performance measurements are also reported to the CIO for Commonwealth investments. These measurements provide a better understanding of investment performance and identify necessary investment adjustments or the need for a replacement investment. The Evaluate Phase answers the question "Are the selected IT investments continuing to deliver the expected business value?"

4.4.1 Evaluate Phase Requirements

The high-level requirements of the Evaluate Phase and their relationship to the APM and PPM lifecycles are illustrated below.

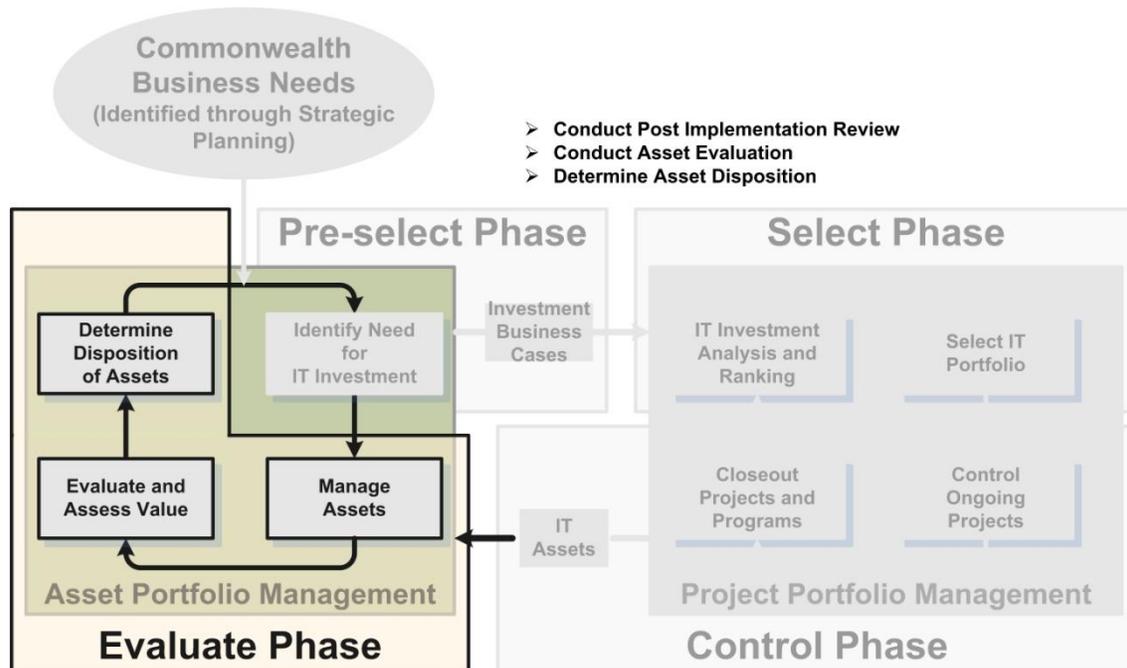


Figure 13: Evaluate Phase

4.4.1.1 Conduct Post Implementation Review

At the end of the ITIM Control Phase, after an IT investment initiative is closed out, the investment becomes an asset and is added to the ATP. IT assets must be managed to insure they are providing the business value expected by the Commonwealth. A PIR using asset performance measures established in the Control Phase will be completed on all new IT assets within 6 – 12 months of the investment becoming an IT asset. For Commonwealth investments, the PIR must follow the workflow in the Commonwealth IT portfolio management tool.

4.4.1.2 Conduct IT Asset Evaluation

IT Asset Evaluations will be performed on all IT assets at both the agency and Commonwealth level and will provide a method for timely identification of suboptimal performance. Each IT asset is assigned associated performance criteria, a monitoring schedule for the collection of performance data, and an identified range of acceptable performance. Performance criteria will be based on industry benchmarks, the performance metrics identified by the agency, the agency's strategic plan, and the Commonwealth's performance measurements.

4.4.1.3 Determine Asset Disposition

The final requirement in the Evaluate Phase is to make a determination to maintain, migrate, improve or retire each IT asset. Agencies must decide to:

1. **Maintain**—continue to sustain IT assets that will meet or exceed the business needs of the agency;
2. **Migrate**—modify the use of IT assets that will not meet the agency business needs that justified the initial IT investment, but which can be repositioned to address other agency business needs;
3. **Improve**—reengineer or otherwise modernize IT assets that will not meet the agency business needs that justified the initial IT investment, but which can be used to meet other agency business needs; or,
4. **Retire**—withdraw from service IT assets that do not justify maintenance, migration, or improvement due to limited business value.

As part of determining the disposition of IT assets, agencies must analyze gaps between current business needs and the performance of IT assets. These gaps will then be added to the overall list of business requirements from the agency and used in the Pre-Select Phase.

4.4.2 Evaluate Phase Roles and Responsibilities

The roles and responsibilities of the stakeholders in the ITIM lifecycle are documented in both the *Code of Virginia* and in Commonwealth standards. The following is a summary of the major stakeholder roles and responsibilities for the ITIM Evaluate Phase.

Roles	Evaluate Phase Responsibilities*
Secretary of Technology	<ul style="list-style-type: none"> • Monitor agency use of IT in support of the delivery of stakeholder services.
CIO	<ul style="list-style-type: none"> • Submit to the Governor and General Assembly an annual report on all contracts describing each information technology program or project associated with the contract, its progress, revenue impact, and such other information as may be relevant; • Evaluate the needs of agencies in the Commonwealth with regard to (i) a consistent, reliable, and secure information technology infrastructure, (ii) existing capabilities with regard to building and supporting that infrastructure, and (iii) recommended approaches to ensure the future development, maintenance, and financing of an information technology infrastructure befitting the needs of state agencies and the service level requirements of its citizens; • Produce a monthly status report on partnership infrastructure projects to provide scope, schedule, cost, risk, and performance measure information; and • Build and maintain a Commonwealth Technology Portfolio to include both assets and projects.
ITAC	<ul style="list-style-type: none"> • Advise the CIO on statewide technical and data standards for information technology and related systems, including the utilization of nationally recognized technical and data standards for health information technology systems or software purchased by a state agency of the Commonwealth; • Advise the CIO on statewide information technology architecture and related system standards; and, • Annually review all agency technology applications budgets and advise the CIO on infrastructure expenditures.
PMD	<ul style="list-style-type: none"> • Participate in IT project Post Implementation Reviews as directed in the Commonwealth Project Management Standard.
ITIMD	<ul style="list-style-type: none"> • On behalf of the CIO, support agency use of a Commonwealth Technology Portfolio that includes operational agency IT assets.
Secretariat	<ul style="list-style-type: none"> • Monitor agency use of IT in support of the delivery of stakeholder services.
Agency	<ul style="list-style-type: none"> • Conduct Post Implementation Reviews on IT projects 6 to 12 months after the IT investment has been implemented using the asset performance measures established in the Control Phase; • Use asset performance measures to measure the business value, cost, systems performance, technical relevance (EA), and risk of the agency's IT assets; • Document IT asset performance using industry benchmarks, the performance metrics identified by the agency, the agency's strategic plan, and the Commonwealth's performance measurements; • Analyze gaps between current business needs and performance of IT assets; and • Make a determination to maintain, migrate, improve, or retire each IT asset in the agency technology portfolio.

Roles	Evaluate Phase Responsibilities*
Program	<ul style="list-style-type: none"> • While the Program is operational, for IT projects managed by the Program, conduct Post Implementation Reviews 6 to 12 months after the IT investment has been implemented using the asset performance measures established in the Control Phase; • While the Program is operational, use asset performance measures to measure the business value, cost, systems performance, technical relevance (EA), and risk of the IT investments implemented by the Program; and, • While the Program is operational, document the performance of IT assets implemented by the Program using industry benchmarks, the performance metrics identified during the Control Phase, the customer agency's strategic plans, and the Commonwealth's performance measurements;

* Other requirements are documented in the Commonwealth of Virginia ITRM Project Management Standard and *Code of Virginia*

For ease of reference, the appendices enumerate ITIM Phase requirements by stakeholder.

APPENDIX A: ACRONYMS USED IN THE ITIM STANDARD

APM—Commonwealth Asset Portfolio Management

APP—Approved for Project Planning

ATP—Agency Technology Portfolio

CIO—Commonwealth Chief Information Officer

CPM Methodology—Commonwealth Project Management Methodology

CTM Policy—Commonwealth Technology Management Policy

CTP—Commonwealth Technology Portfolio

DPB—Department of Planning and Budget

EA—Enterprise Architecture

IBC—Investment Business Case

IFB—Invitations for Bid

IPP—Identified for Preliminary Planning

ISPM—Commonwealth Infrastructure Service Portfolio Management

IT—Information Technology

ITAC —Information Technology Advisory Council

ITIB—Information Technology Investment Board

ITIM—Information Technology Investment Management

ITIM Standard—Commonwealth of Virginia Information Technology Resource Management
Information Technology Investment Management Standard

ITSP—Agency IT Strategic Plan

PIR—Post Implementation Review

PMD—Commonwealth Project Management Division

PPM—Commonwealth Project Portfolio Management

RFS—Requests for Service

RTIP Report—Recommended Technology Investment Projects Report

SPM—Commonwealth Solutions Portfolio Management

VITA—Virginia Information Technologies Agency

APPENDIX B: SECRETARY of TECHNOLOGY ITIM PHASE RESPONSIBILITIES

Phase	Secretariat Responsibilities
Pre-select (Identify) Phase	<ul style="list-style-type: none"> • Establish business priorities for the Technology Secretariat. • Approve the six-year Commonwealth Strategic Plan for Information Technology; and, • Review and approve statewide technical and data standards for IT and related systems, including the utilization of nationally recognized technical and data standards for health information technology systems or software purchased by a state agency of the Commonwealth.
Select Phase	<ul style="list-style-type: none"> • Review and approve the procurement of agency technology projects. Prioritize the Secretariats' Major IT Projects.
Control Phase	<ul style="list-style-type: none"> • Review and approve the termination of agency technology projects; and, • Review, approve, and comment on monthly status reports, baseline adjustments greater than 10%, and IV&V reports for each active major IT project as needed.
Evaluate Phase	<ul style="list-style-type: none"> • Monitor agency use of IT in support of the delivery of stakeholder services.

APPENDIX C: CIO ITIM PHASE RESPONSIBILITIES

Phase	CIO Responsibilities
Pre-select (Identify) Phase	<ul style="list-style-type: none"> • Define criteria for evaluating Commonwealth IT investments; • Review and approve all state agency and public institution of higher education information technology plans; • Evaluate and recommend approval or disapproval of the IT components of agency strategic plans or IT investment changes to agency strategic plans; • Develop the six-year Commonwealth Strategic Plan for Information Technology, update the Plan annually, and submit to the Board for approval; • Plan and forecast future needs for information technology and conduct studies and surveys of organizational structures and best management practices of information technology systems and procedures; • Assist state agencies and public institutions of higher education in the development of information management plans and the preparation of budget requests for information technology; • Develop statewide technical standards for information technology and related systems; and • Define the Commonwealth's "as-is" and "to-be" Enterprise Architecture.
Select Phase	<ul style="list-style-type: none"> • Review agency IT budgets and make recommendations to the Department of Planning and Budget (DPB); • Build and maintain a Commonwealth Technology Portfolio (CTP) to include both assets and projects; • Review and approve for planning all Major and Non-major IT Projects and procurements over \$100,000; and • Review Commonwealth IT portfolio analysis, accompanying documents, and the recommended Commonwealth IT portfolio and submit the annual RTIP Report, with recommended priorities for funding the projects, to the Board in anticipation of the Board submitting the RTIP to the Governor and the General Assembly by September 1 of each year.
Control Phase	<ul style="list-style-type: none"> • Review and grant approval or disapproval of Commonwealth IT Projects and procurements; • Appoint an Internal Agency Oversight Committee (IAOC) for each Major IT project to provide oversight and direction to the project for which they are chartered and participates (or appoints a representative) as a voting member on the Proponent Secretariat Oversight Committee (PSOC) for Major IT projects; and • Approve, as a part of the project plan, the target asset performance measures to be used in the asset's Post Implementation Review (PIR).

Phase	CIO Responsibilities
Evaluate Phase	<ul style="list-style-type: none">• Submit to the Governor and General Assembly an annual report on all contracts describing each information technology program or project associated with the contract, its progress, revenue impact, and such other information as may be relevant;• Evaluate the needs of agencies in the Commonwealth with regard to (i) a consistent, reliable, and secure information technology infrastructure, (ii) existing capabilities with regard to building and supporting that infrastructure, and (iii) recommended approaches to ensure the future development, maintenance, and financing of an information technology infrastructure befitting the needs of state agencies and the service level requirements of its citizens;• Produce a monthly status report on partnership infrastructure projects to provide scope, schedule, cost, risk, and performance measure information; and• Build and maintain a Commonwealth Technology Portfolio to include both assets and projects.

APPENDIX D: ITAC ITIM PHASE RESPONSIBILITIES

Phase	ITAC Responsibilities
Pre-select (Identify) Phase	<ul style="list-style-type: none"> • Advise the CIO on developing the six-year Commonwealth Strategic Plan for Information Technology; • Advise the CIO on strategies for the use of information technology for state agencies in the executive branch of state government; and, • Advise the CIO on assessing and meeting the Commonwealth's business needs through the application of information technology.
Select Phase	<ul style="list-style-type: none"> • Advise the CIO on the prioritization of enterprise-wide technology applications; and, • Advise the CIO on priorities for the use of information technology for state agencies in the executive branch of state government.
Control Phase	<ul style="list-style-type: none"> • Advise the CIO on the development of all major information technology projects; and, • Advise the CIO on the development and implementation of enterprise-wide technology applications.
Evaluate Phase	<ul style="list-style-type: none"> • Advise the CIO on statewide technical and data standards for information technology and related systems, including the utilization of nationally recognized technical and data standards for health information technology systems or software purchased by a state agency of the Commonwealth; • Advise the CIO on statewide information technology architecture and related system standards; and, • Annually review all agency technology applications budgets and advise the CIO on infrastructure expenditures.

APPENDIX E: PMD ITIM PHASE RESPONSIBILITIES

Phase	PMD Responsibilities
Pre-select (Identify) Phase	<ul style="list-style-type: none"> • Evaluate all IT investments that qualify as Commonwealth Technology Portfolio investments according to approved criteria; • Review agency and public institution of higher education information management and information technology plans and recommend approval or disapproval to the CIO; • Monitor agency and public institution of higher education implementation of information management and information technology plans and periodically report findings to the CIO; and, • On an ongoing basis, evaluate IT investment changes to agency and public institution of higher education strategic plans and recommend for approval or disapproval to the CIO.
Select Phase	<ul style="list-style-type: none"> • Provide ongoing assistance and support to state agencies and public institutions of higher education in the development of information technology projects; • Review agency IT investments and recommend planning approval or disapproval to the CIO; • Evaluate, score, and rank all major IT projects according to the approved CIO criteria and submit a recommendation for funding to the CIO; and, • Review and approve agency IT budget recommendations to the CIO.
Control Phase	<ul style="list-style-type: none"> • Provide oversight and governance on all Commonwealth IT Projects; • Provide appropriate reports to the CIO and in accordance with the <i>Code of Virginia</i>; and • Ensure projects are being run in accordance with statewide technical and data standards for information technology and related systems.
Evaluate Phase	<ul style="list-style-type: none"> • Participate in IT project Post Implementation Reviews as directed in the Commonwealth Project Management Standard.

APPENDIX F: ITIMD ITIM PHASE RESPONSIBILITIES

Phase	ITIMD Responsibilities
Pre-select (Identify) Phase	<ul style="list-style-type: none"> • Evaluate all IT investments that qualify as Commonwealth Technology Portfolio investments according to approved criteria; • Every two years, as part of the budget process, evaluate agency and public institution of higher education Information Technology Strategic Plans (ITSP) and recommend approval or disapproval to the CIO; and, • Insure all agencies and public institutions of higher education under oversight and governance have a CIO-approved ITSP.
Select Phase	<ul style="list-style-type: none"> • Prepare the Annual Recommended Technology Investment Projects (RTIP) Report and provide a quarterly update; • Obtain CIO approval of the RTIP Report with recommended priorities for funding projects; and, • Obtain CIO key themes and messages and prepare the RTIP Report for delivery to the Governor and General Assembly on September 1 of each year.
Control Phase	<ul style="list-style-type: none"> • On behalf of the CIO, support agency use of a Commonwealth Technology Portfolio that includes agency IT projects.
Evaluate Phase	<ul style="list-style-type: none"> • On behalf of the CIO, support agency use of a Commonwealth Technology Portfolio that includes operational agency IT assets.

APPENDIX G: SECRETARIAT ITIM PHASE RESPONSIBILITIES

Phase	Secretariat Responsibilities
Pre-select (Identify) Phase	<ul style="list-style-type: none">• Establish business priorities for their Secretariat.
Select Phase	<ul style="list-style-type: none">• Prioritize the Secretariat's Major IT Projects.
Control Phase	<ul style="list-style-type: none">• Review, approve, and comment on monthly status reports, baseline adjustments greater than 10%, and IV&V reports for each active Major project as needed.
Evaluate Phase	<ul style="list-style-type: none">• Monitor agency use of IT in support of the delivery of stakeholder services.

APPENDIX H: AGENCY ITIM PHASE RESPONSIBILITIES

Phase	Agency Responsibilities
Pre-select (Identify) Phase	<ul style="list-style-type: none"> • Identify business needs and prioritize potential investments; • Document target performance metrics and identify business value for potential investments in Investment Business Cases; • Research possible enterprise or collaboration opportunities for the agency; and • Update the Agency Strategic Plan and Agency Technology Portfolio with IT investment business cases, identified business needs, and identified value for each potential investment.
Select Phase	<ul style="list-style-type: none"> • Establish a process for evaluating, scoring, and ranking IT investments for the agency; and • Prioritize agency IT Projects.
Control Phase	<ul style="list-style-type: none"> • Translate business value into asset performance measures; • Develop detailed project plans and execute projects as directed in the Commonwealth Project Management Standard; • Develop applications and application modifications in accordance with statewide technical and data standards for information technology and related systems; and • Prepare and submit monthly status reports, requests for baseline adjustments greater than 10%, and IV&V reports for each Major IT Project (as scheduled).
Evaluate Phase	<ul style="list-style-type: none"> • Conduct Post Implementation Reviews on IT projects 6 to 12 months after the IT investment has been implemented using the asset performance measures established in the Control Phase; • Use asset performance measures to measure the business value, cost, systems performance, technical relevance (EA), and risk of the agency's IT assets; • Document IT asset performance using industry benchmarks, the performance metrics identified by the agency, the agency's strategic plan, and the Commonwealth's performance measurements; • Analyze gaps between current business needs and performance of IT assets; and • Make a determination to maintain, migrate, improve, or retire each IT asset in the agency technology portfolio.

APPENDIX I: PROGRAM ITIM PHASE RESPONSIBILITIES

Phase	Program Responsibilities
Pre-select (Identify) Phase	<ul style="list-style-type: none"> Advise Secretariats and agencies on Investment Business Cases for potential IT investments that can be managed within the scope of the program.
Select Phase	<ul style="list-style-type: none"> Provide evaluation, scoring, ranking and investment business case information for IT projects and procurements that can be managed within the program as needed.
Control Phase	<ul style="list-style-type: none"> Manage projects within the scope of the program in a coordinated way to obtain business value and control not available from managing the projects individually.
Evaluate Phase	<ul style="list-style-type: none"> While the Program is operational, for IT projects managed by the Program, conduct Post Implementation Reviews 6 to 12 months after the IT investment has been implemented using the asset performance measures established in the Control Phase; While the Program is operational, use asset performance measures to measure the business value, cost, systems performance, technical relevance (EA), and risk of the IT investments implemented by the Program; and, While the Program is operational, document the performance of IT assets implemented by the Program using industry benchmarks, the performance metrics identified during the Control Phase, the customer agency's strategic plans, and the Commonwealth's performance measurements;