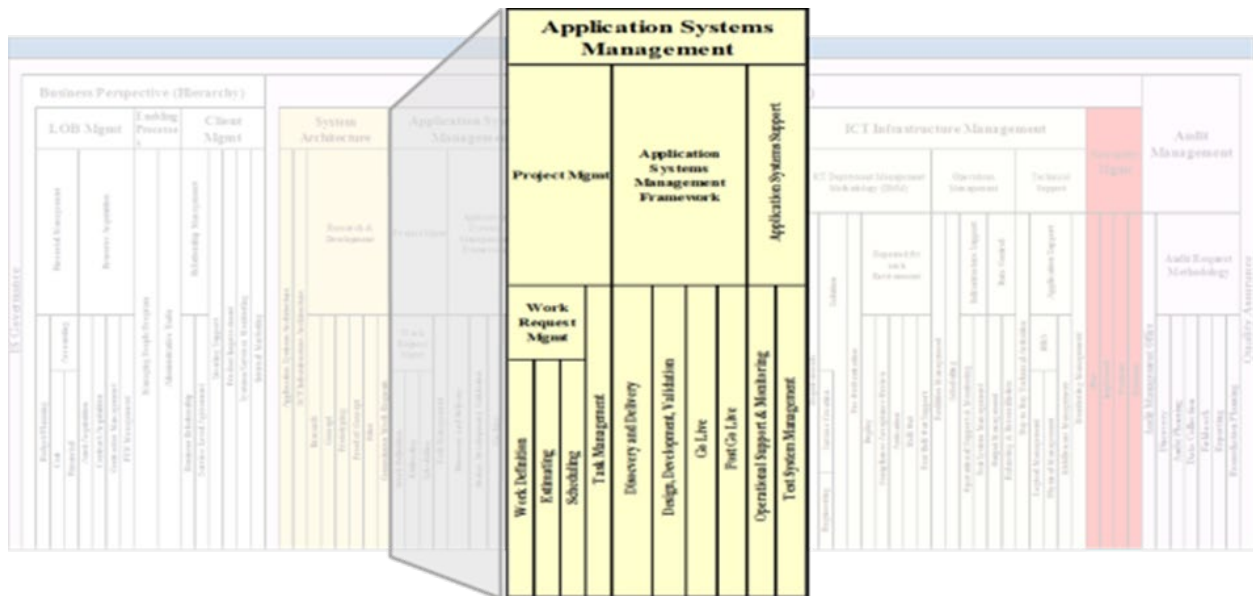


# Application Systems Management



## Information Systems Standards Manual

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# Chapter 1 Project Management

Project Management is defined as processes related to planning, monitoring and controlling, and integrated management of the Work Requests to ensure that these are delivered on time, within budget, adhere to high quality standards, and meet Customer expectations. Work Request Management and Task Management are components of Project Management and are described below:

- Work Request Management covers the processes related to Estimating, Work Scheduling, and IT Resource Management for Work Requests that take the form of change sheets or projects.
- Task Management serves as the foundation for Project Management activities. Task Management is the process of managing, through its life cycle, an activity or collection of activities that need to be accomplished within a defined period of time or by a deadline, in order to meet a pre-defined goal.

The processes and procedures outlined in this chapter are considered mandatory for all areas of Information Systems reporting to the Chief Information Officer. These and the procedures set the minimum level of compliance and are assessed by the I/S Process Audit Department.

Any request to change, add, delete or modify the Work Request Management process in any way must be presented to the Client Management Subcommittee of the I/S Policy Committee, which will review the proposed changes and make a recommendation to I/S Governance for final approval. The I/S Governor must approve any request for waivers from this process.

At the highest level, all Work Requests require:

- A clear definition of the business need.
- A high-level assessment of known areas of concern identified as "Risk Alerts."
- A coordinated start work date among all I/S areas and approved by the customer.
- A Roles Lineup Card maintained throughout the life cycle of any Work Request.
- Client Management's authorization that I/S efforts can begin on the Work Request.
- Collaboration among I/S and the Stakeholders on the project team is required to ensure that any requirement changes are discussed and approved by the project team.

## 1.1 Work Request Management

Work Request Management covers the processes related to Work Request initiation, which includes: Estimating, Work Scheduling, and IT Resource Management for Work Requests that take the form of change sheets or projects.

The objective of this process is to ensure that the ultimate product meets the business need of the requestor while being cost effective for the corporation as a whole.

The diagrams below provide a high-level overview of the workflow. This workflow is facilitated by the ***Management Practices System (MPS)***.

It is vital that as part of the processes related to estimating and work scheduling each I/S manager establishes and maintains detailed resource plans for all staff members. Each estimate and work schedule should be based upon the manager's analysis of the availability and expertise of their staff members.



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**REQUIREMENTS REMINDER** During work definition, estimating, and work scheduling, it is important that the customer clearly defines, justifies and documents the business needs.

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### 1.1.1 Work Definition

The Work Definition process is the responsibility of Client Management.

At this point in the process cycle, the following is defined:

- The identification of the Stakeholders who will be providing the business need
- The Work Definition Documents (WDDs), defining the business need of the Stakeholder's request
- The assignment of the primary client advocate
- The identification of the impacted Project Management Office
- The priority of the Work Request
- The initial known areas of concern identified as "Risk Alerts"

***MPS*** provides for the tracking of these items.



**NOTE** Work Requests based on an audit finding must have WDDs that include the following:

- The audit finding
- The name of the audit and associated Work Request number
- The management response and the name of the person providing the response, who will be part of the work effort team.

## 1.1.2 Estimating

All Work Requests are required to have an estimate to assist the customer and Client Management in determining whether they are going to authorize the hours to perform the work.

The Estimating Team works within the I/S organization and is responsible for the coordination of estimating activity. The Estimating Team works with WDDs created by Client Management. The result of the estimating process is an estimate in hours, along with the associated general objectives, approaches, assumptions, constraints and Risk Alerts, which have been reviewed and approved by experienced staff members.

The Estimating Team coordinates with all of the I/S managers that may be impacted by the Work Request in order to obtain estimates.

The estimating process begins with a review of the WDD for a reasonable definition of work and associated Risk Alerts. The next step is the identification of all application, infrastructure, operational and support areas that may be impacted by the implementation of the work.

Once the impact identification is completed, the estimating process continues through one of two estimating types currently used:

- High Level Estimate
- Funding Level Estimate

A High Level Estimate (HLE) (Figure 1-1) is the most common estimate provided and is based on minimal requirements with a target turnaround date of five working days. A Funding Level Estimate (FLE) (Figure 1-2) must be authorized by a Steering Chair and approved by Client Management. It is made up of two steps: an Estimate to Estimate (E2E) and the FLE itself. The end result of the FLE is a more detailed requirements analysis but includes the same components as an HLE.

Guidelines for requesting an FLE from the Steering Committee are listed below:

1. Return on Investment — An FLE assists the customer in determining if the return is worth the cost for a specific effort.
2. New Products — The development of a new product or service brings with it many start-up costs and configurations not found in routine work. An FLE provides more data on how the new product/service will integrate with existing systems.
3. Multiple Approaches — An FLE is recommended if a customer requests multiple options to a given business problem.



The estimating process is managed by using **MPS** to track, authorize and progress through the associated work steps.

HLEs, FLEs, and Request for Solution (RFS) estimates are driven by Business Requirements. They differ from estimates developed during the life cycle of a Work Request, which drill down into technical approaches and technical specifications. Estimates made during the HLE or FLE processes are subject to change during the different phases of the Work Request. Estimates are re-evaluated in the Discovery & Delivery Strategy and Design phases.

The staff members that develop the estimates are described below:

- Estimating Team — Responsible for coordination and delivery of estimates and work schedules to Client Management.
- Virtual Team — Other I/S staff members who are not members of the Estimating Team but are called upon to assist with estimation.

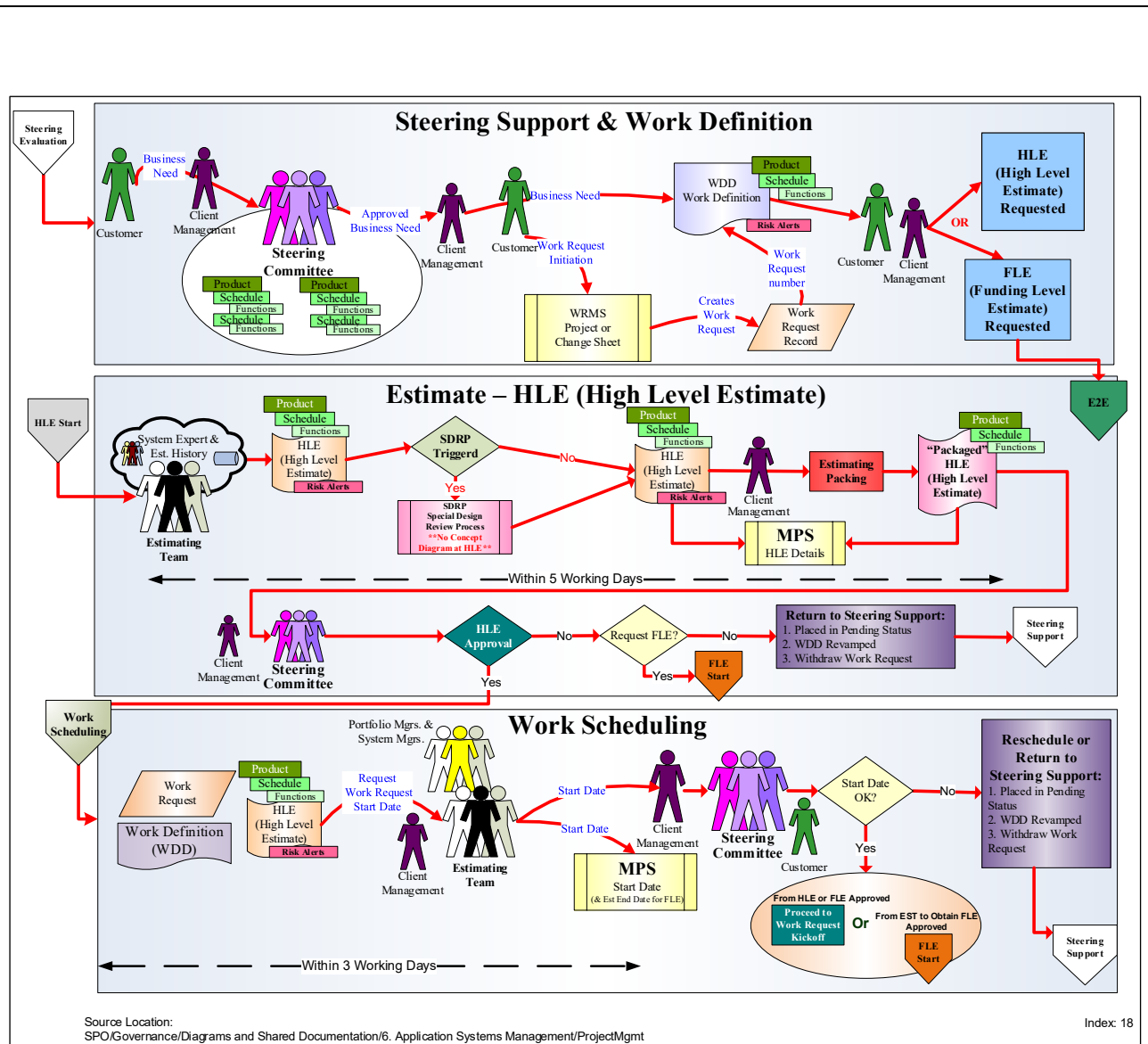


Figure 1-1 High Level Estimate Process Flow

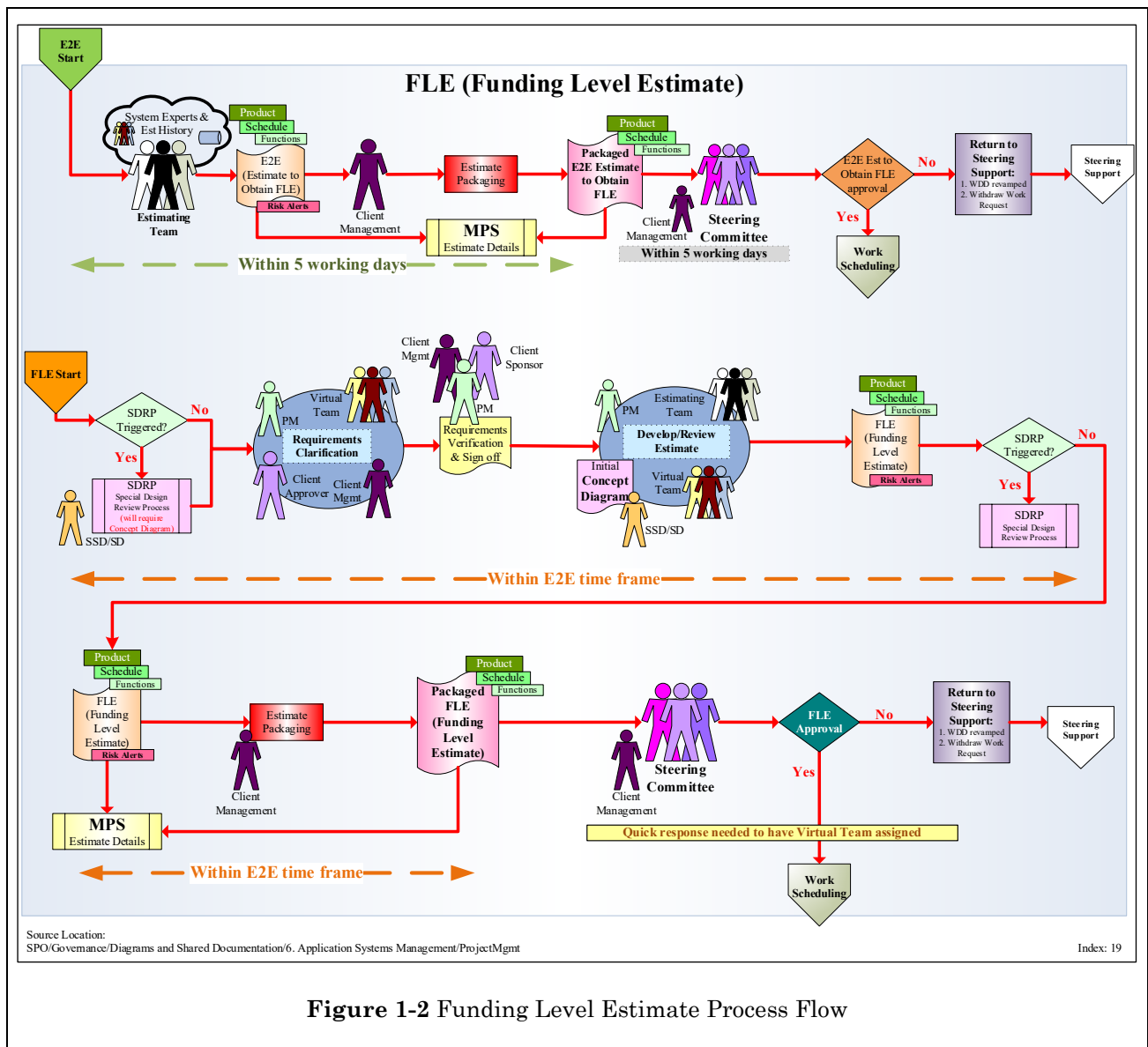


Figure 1-2 Funding Level Estimate Process Flow

### 1.1.2.1 High Level Estimate

A High Level Estimate provides an estimate in hours based on the minimal requirements information included in the WDDs. An HLE is derived in a short time frame using estimating models, historical estimates, and individual experience.

An HLE is the preferred estimating process to progress work into the appropriate methodology phase. When it is known that a work effort must move forward (e.g., mandates, year-end activities, etc.), Client Management has the ability to pre-authorize an estimate in **MPS**. Pre-authorization of hours helps the Work Request move quickly through the estimating process.

Estimates for HLEs are provided to each impacted area by the Estimating Team, assimilated into an HLE and returned to Client Management.

The High Level Estimate Process Flow diagram indicates the Estimating Team has the responsibility for developing the estimate and coordinating with system experts from the application development areas on an as-needed basis. The Estimating Team compiles the estimate document and updates **MPS** as necessary for impacted managers and Risk Alerts. The Estimate Coordinators conduct a final review of the estimate for completeness and accuracy, certify the estimate in **MPS**, and notify the impacted managers and client that the estimate is ready. If the Solution Detail Review Process (SDRP) is triggered, the Estimating Team will notify Client Management and the SDRP group.

At this point in the process, a number of outputs have occurred including these items:

- An estimate by each involved manager has been developed.
- The initial areas impacted have been identified and entered in **MPS**.
- Risk Alerts have been reviewed.
- An HLE has been packaged by Client Management and has proceeded to the Steering Sponsor for approval.

### 1.1.2.2 Funding Level Estimate

The purpose of the Funding Level Estimate is to provide the customer with a detailed estimate so that the Steering Sponsor can make a more informed business decision about proceeding with the Work Request. To accomplish this, the requirements must be more fully defined and analyzed. High-level business approaches, assumptions and constraints for the solution are also defined. An I/S team is formed to focus on completing the requirements analysis and deriving this detailed estimate.

The Funding Level Estimate requires a focused approach to define the requirements. The resources must be planned and scheduled by I/S managers.

The Funding Level Estimate process delivers two estimates:

- Estimate to Estimate — Describes the number of hours required to complete the Funding Level Estimate, the duration of the Funding Level Estimate, and the date when estimating work can begin.
- Funding Level Estimate — Describes the level of effort to perform the original Work Request.

If the Steering Sponsor approves the Estimate to Estimate, the Funding Level Estimate process will begin on the approved start work date for the Funding Level Estimate. The focused I/S team, mentioned above, will then develop the detailed estimate for the Work Request.

## FLE Process Activities

The Funding Level Estimate begins with the Project Manager gathering team members for a Funding Level Estimate kickoff for the effort. The Project Manager continues throughout the process to provide overall management just as they do for Work Requests. This includes ensuring that the ASM Framework activities are done (e.g., work sessions held, Roles filled, the Roles Lineup Card completed, etc.).

The Funding Level Estimate Accountability Matrix (Figure 1-3) identifies the deliverables for the FLE and the Roles needed to produce the estimate.

Work Request Management				
Funding Level Estimate Process		FLE		
FLE Deliverables	FLE Requirements Definition	FLE Requirements definition Concurrence	(Initial) Concept Diagram	Funding Level Estimate Document
Project Manager	R	R	R	D
Solution System Designer or Solution Delivery Designer	A	C	A	C
Client Advocate	C	D	A	C
System Designer	C	C	D	C
Business System Analyst	D	C	C	C
System Analyst			C	C
Software Designer				
Software Developer				
System Expert	C	C	C	C
Test Designer				
Tester				
Team Lead	R	R	R	R
Usability Designer	C			
Technical Writer				
Process Analyst				
Toolsmith				
Language Lawyer				
Architect	C	C	C	C
Enterprise Architect	C	C	C	C

R – Responsible/Oversight C – Contributor (knowledge or part of artifact) A – Accountable for Content D – Delivery of Artifact

only one person per work request (WR)  
if filled, one or more per WR per application area  
as needed based on WR requirements  
management / architecture

Disclaimer: Depending on circumstances, any team members on a work effort may be called upon to participate in the development of any artifact. The designations listed here represent task assignments on a standard work effort.

**Figure 1-3 Funding Level Estimate Matrix**



**NOTE** No other work is to commence during the Funding Level Estimate process other than the identification and documentation of the Business Requirements, approaches, and estimate.

Client Management also follows the standard costing review process with the I/S LOB Management if dollar estimates are requested by the Steering Sponsor.

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### Initial FLE Documentation

The purpose of the Initial FLE Documentation is to provide the Steering Sponsor with a fully documented description of the requirements for a given Work Request. This document defines what is to be accomplished, what I/S areas are impacted and the estimates by manager for the Work Request.

### Initial FLE Documentation Approval

The review of the Initial FLE Documentation requires approval from the Steering Sponsor in order to gain documented concurrence of the requirements.

### Final FLE Documentation

The final FLE Documentation includes the agreed upon objectives, requirements, assumptions, constraints, risks, approaches, and estimate in hours so that the Steering Sponsor can determine whether to authorize the work effort.

### Final FLE Documentation Approval

The review of the final FLE Documentation requires approval from the Steering Sponsor in order to gain documented concurrence of the requirements.

## 1.1.3 Scheduling

Work scheduling will involve all managers that were identified during Estimating as having a stake in the completion of the Work Request. The Scheduling process establishes a projected start date for the Work Request. This step in the process is the time when the availability of resources is closely examined, and the managers determine their ability to support the Work Request and in what time frame this can be done.

It is the responsibility of the Estimating Team to see that work scheduling is completed in a timely fashion and to escalate to Project Management if timeliness requirements are not met. The Portfolio Manager is the mediator between the various systems areas, including Client Management, to establish an overall start work date. The Portfolio Manager must reconcile start date inconsistencies or escalate the situation to the next level of management for resolution. The turnaround to obtain start dates for all managers is to be no longer than three (3) working days.

Scheduling is an iterative process. A Work Request may go through both the estimating process and work scheduling multiple times before a final authorization to proceed with development is received from the Steering Committee.

Once the Work Request is authorized for initiation, the project team is responsible for establishing targeted dates. The system areas should review their resources and determine an agreed upon time frame when work can begin. The dates should be recorded in *MPS*.

Any changes to the scheduling should be a collaboration with the project team with everyone's concurrence. The change must be clearly documented and explained in the development documentation through the change process.

### 1.1.3.1 Effort Initiation

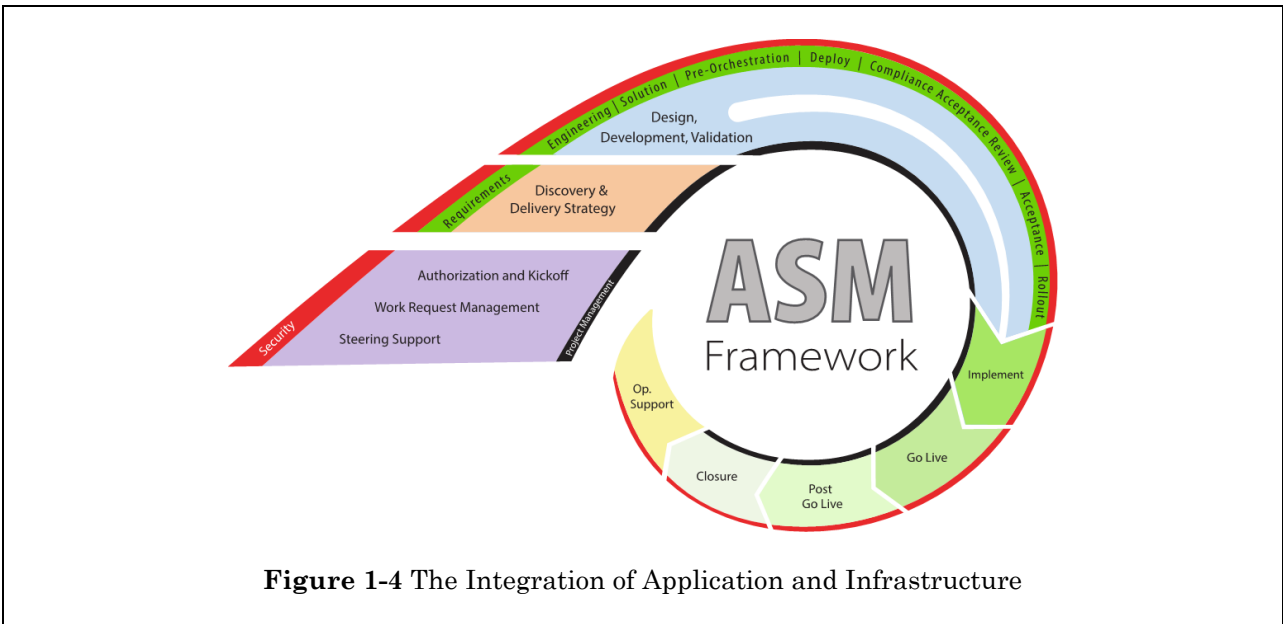
During the effort initiation, resources are assigned, and the team reviews the business drivers, work description, the estimate, and ensures that the appropriate areas are available to begin the effort. Not all resources may be available at effort initiation. Work effort team members that are in the critical path need to be identified. These are team members that have activities that can determine the strategy for the work effort. This will allow the project team the opportunity to assist with engaging the appropriate resources.

## 1.2 Task Management

The Task Management reports and Task Management processes support the overall management of the Work Request plan, which will result in the completion of a given Work Request. The purpose of these reports and processes is to provide all levels of management with feedback as to the status of a given product request. This feedback in turn allows management to direct the use of I/S resources.

### 1.2.1 Project Management Activities

Figure 1-4 below depicts ASM Framework life cycle. Project Management is shown as being engaged throughout the life cycle of an effort.



### 1.2.2 Ongoing Life Cycle Documentation

The Project Manager is responsible for specific life cycle documentation that is required throughout the Work Request. The I/S Staff stores the documentation in **SharePoint**.

Status reports are used to communicate to various levels of management the status of a given I/S Work Request.

### 1.2.3 Business Risk Identification

During any work activity, a non-standard infrastructure implementation or application change may be called for based upon the Business Requirements for the work. In order for the changes to proceed, appropriate areas representing the business interests may need to be notified of the nonstandard elements so that the risk can be understood and accepted by the business area. This is known as Business Risk Identification.



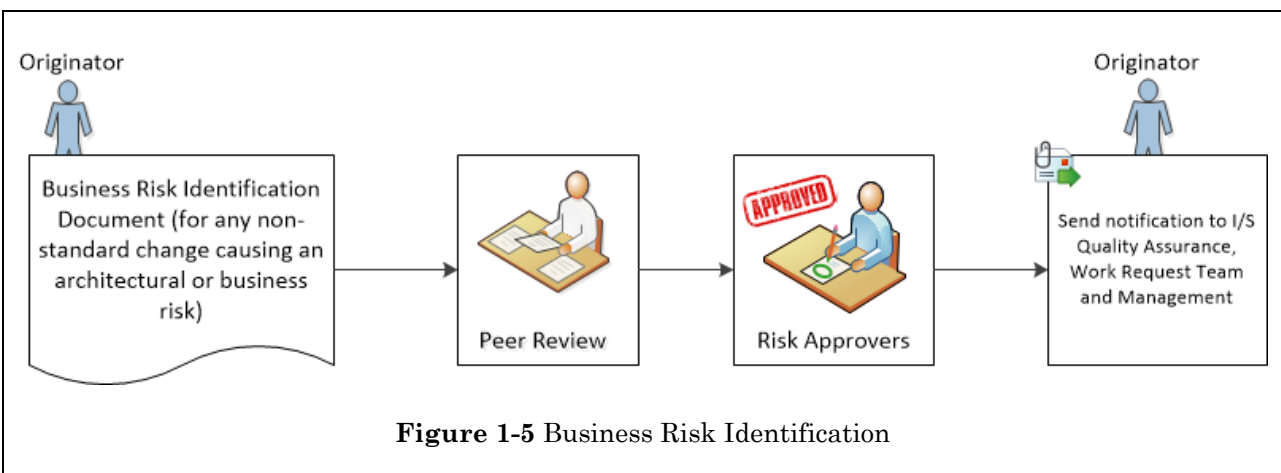
There are three main categories of business risks.

- **Security Variance** — A variance that is not in compliance with corporate security standards, governmental security standards, or contractual security obligations. Acceptance of this business risk must be documented and approved through the Security Council chairman.
- **Architectural Variance** — A variance that occurs when a tool or software system is not used in a manner that has been approved of by the Enterprise Architect Office (e.g., **SharePoint** being used for workflows instead of **WMS**). Acceptance of this business risk must be documented as approved by the Enterprise Architect Office.
- **Nonstandard Hardware/Software Use** — The use of hardware or software that has not gone through the normal selection process, that has gone through the normal selection process but has not been approved, or that is at the end of life or no longer supported. Acceptance of this business risk must be documented as approved by the Enterprise Architect Office.

In the first step of the identification process (Figure 1-5), the person or area that has identified the risk (the originator) is responsible for documenting it and presenting it to a group of peers for review. Upon approval from the peers, the originator takes the document (now known as the Business Risk Identification Document) for review and approval by the area associated with the appropriate category listed above.

Upon approval of the Business Risk Identification Document, notification is sent to the I/S QA department, and the Work Request team is notified.

Risk Document artifacts are required for any deviations from the standard security baseline(s). Documentation types include Mitigation Strategy Report (MSR), Business Risk Justification (BRJ), False Positive (FP), Policy, and Plan of Action and Milestones (POA&M).



## 1.2.4 Risk Alerts

The use of Risk Alerts is a part of the BlueCross I/S strategy to identify risk and to manage Work Requests responsibly. These alerts serve to identify Work Requests with potential areas of concern to management.

Risk alerts are required to be entered and reviewed throughout the life cycle of a Work Request.

These alerts and associated values are displayed on the applicable **MPS** reports, which provide a cumulative score for each Work Request. Any Work Request with a score above a defined tolerance level may be referred for a Senior Management review. The goal is to provide additional management focus with the authority to direct resolutions of issues and to remove organizational or business obstacles. Senior Management meetings may be invoked to review the identified Work Requests. Note that these potential Senior Management reviews do not remove or substitute organizational accountability but rather support the overall mission to bring Work Requests in on time, within budget and with a high degree of quality.

## 1.2.5 Lessons Learned

Lessons Learned are captured throughout the Work Request's life cycle or at least at the end of each phase of a Work Request. Documentation is created identifying all the observations with proposed action plans on how to address, if negative, or leverage in future efforts, if positive.

## 1.2.6 Closure

Prior to the formal closure, the Stakeholder's approval must be provided.

## 1.2.7 Project Plan

The project plan is used to record and manage projects at the task level. The project plan is designed to assist the Project Management Office(s) and assigned I/S departments in managing the work carried out by the resource assigned to the individual tasks.

## Chapter 2 System Development Methodologies

### 2.1 System Architecture — The Unity of Application and Infrastructure

***Infrastructure exists for the purpose of running Application Software. Application Software cannot run without Infrastructure.***

To maintain this architecture, BlueCross develops infrastructure by first developing Infrastructure Service Offerings, which are then combined to deploy Infrastructure Solutions. Application Systems can then execute on the deployed Infrastructure Solutions. The infrastructure is based on the pre-architected, pre-engineered Infrastructure Service Offerings in the Infrastructure Service Catalog. The Infrastructure Service Offerings are based on a combination of approved infrastructure technologies designed to support multiple applications or application components that have common infrastructure requirements. The Infrastructure Service Offering is represented by the Infrastructure Service Definition Document stored in the Infrastructure Service Catalog.

***An Infrastructure Solution is a combination of approved Infrastructure Service Offerings leveraged to build the infrastructure for use by Application Systems.***

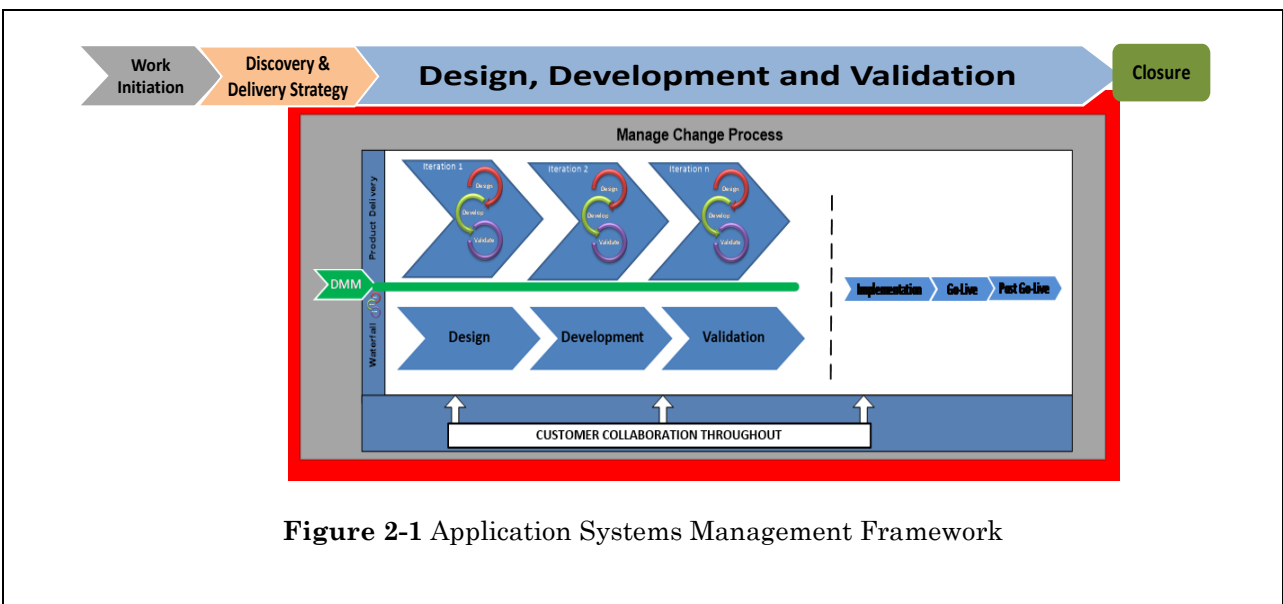
## 2.2 Application Systems Management Framework



**NOTE** This chapter discusses **what** needs to be done with respect to System Development Methodologies and not **how** that is to be accomplished. For this, refer to *Application Systems Management > Application Systems Management Framework* as well as to desk procedures that cover the more detailed workflow processes and/or organizational coordination.

Computer-based products consisting of hardware and software components and services do not just happen. The Application Systems Management Framework provides product consistency that satisfies the BlueCross customers, helps contain costs, increases productivity, and improves the overall quality of BlueCross systems. The Application Systems Management Framework was created to execute our software methodology using different techniques. Said techniques satisfy the business need of creating an efficient process for developing and delivering product changes. The Application Systems Management Framework allows an effort to use the Project-Based Delivery Strategy or Product-Based Delivery Strategy. This will allow for flexibility in the execution of an effort, streamlining of documentation and implementation in multiple phases. I/S and Customers are expected to collaborate and make decisions regarding an effort together throughout the life cycle of the effort.

As shown below (Figure 2-1), the Application Systems Management Framework consists of the following phases: Discovery and Delivery Strategy, Design, Delivery, Validation, Implementation, Go-Live, Post Go-Live and Closure.



**Figure 2-1** Application Systems Management Framework

## 2.2.1 Project-Based Delivery

Project-Based Delivery is the default delivery method for BlueCross — each work effort is established to deliver a specific set of Business Requirements and has a start and an end. Project-Based Delivery typically incorporates the use of waterfall project management methodology, but can also use Agile techniques and methodology. Waterfall methodology is characterized by distinct steps or phases during which predefined deliverables are created. The distinct steps or phases have review points that typically involve the review of the deliverables and mark the completion of one phase and the beginning of the next phase. This ensures that there is ongoing communication and formal confirmation. This is the main way the customer of the Work Request exercises control over the work and ensures that the requirements are understood, approaches are acceptable and only authorized work is performed. During major phases, there are also interim deliverables that may require I/S and customer approval prior to the major phase review. The goal of these interim deliverables is to improve communication, ensure the quality of what is being delivered and decrease the time to complete the Work Request.

Within the ASM Framework, waterfall can be used in a variety of ways, resulting in a modified waterfall approach. It can include overlapping phases and iterative delivery. Rather than opening sub-projects for each deliverable, as required in the past, one work effort can have iterative implementations. Review points with the Stakeholders are necessary to ensure that the deliverables meet the business need. The review points should be a collaboration with all Stakeholders.

Project-Based Delivery can also utilize Agile methodology or techniques. Agile techniques include daily stand-ups, role consolidation, customer collaboration, iterative documentation, and so on. A Project-Based Delivery work effort can utilize these agile techniques within a waterfall methodology (including iterative delivery) or may utilize Agile methodology.

## 2.2.2 Product-Based Delivery

Product-Based Delivery allows the work to be organized by a business-focused product, rather than a specific set of requirements or a specific application or technology. Products and, thus, Product-Based Delivery are defined by a partnership between I/S and the customers, and require management approval.

Product-Based Delivery relies entirely on Agile methodology. The preferred type of Agile methodology to be used at BlueCross BlueShield is Scrum. Agile software development comprises various approaches to software development under which requirements and solutions evolve through the collaborative effort of self-organizing and cross-functional teams and their customers or end users. It advocates adaptive planning, evolutionary development, early delivery and continual improvement. It encourages rapid and flexible response to change. Even though Agile can be implemented in a variety of ways, development teams will still need to abide by the ASM Framework's guidelines.

Each team will do what is appropriate for the effort. The team is expected to understand what activities, artifacts, or deliverables are necessary for the effort and those that are not.

Throughout the process, customer collaboration is required and expected. The customer:

- Is included throughout the life cycle of an effort.
- Is included in the decisions regarding the work effort.
- Must provide approval on requirements.
- Must provide approval to move forward.

- Must be made aware of any issues that may impact the cost and timeline of an effort.
- Must provide approval for any changes to requirements.

Application Systems Management Framework and Deployment Management Methodology each have defined methodologies, which describe the phases of the product development life cycle.

- **Application Systems Management Framework** is used to drive and support the delivery, validation, I/S Factory Support or operations services required for a particular business.
- **Deployment Management Methodology** is the methodology used by BlueCross to deploy or modify the necessary infrastructure for applications.



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**NOTE:** If the project determines the execution strategy is to have phases during the Discovery and Delivery Strategy Phase, then the team must coordinate with the impacted system areas' management. Management will need to ensure that resources are available to support the schedule and notify the project team accordingly.

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## 2.3 Deployment Management Methodology

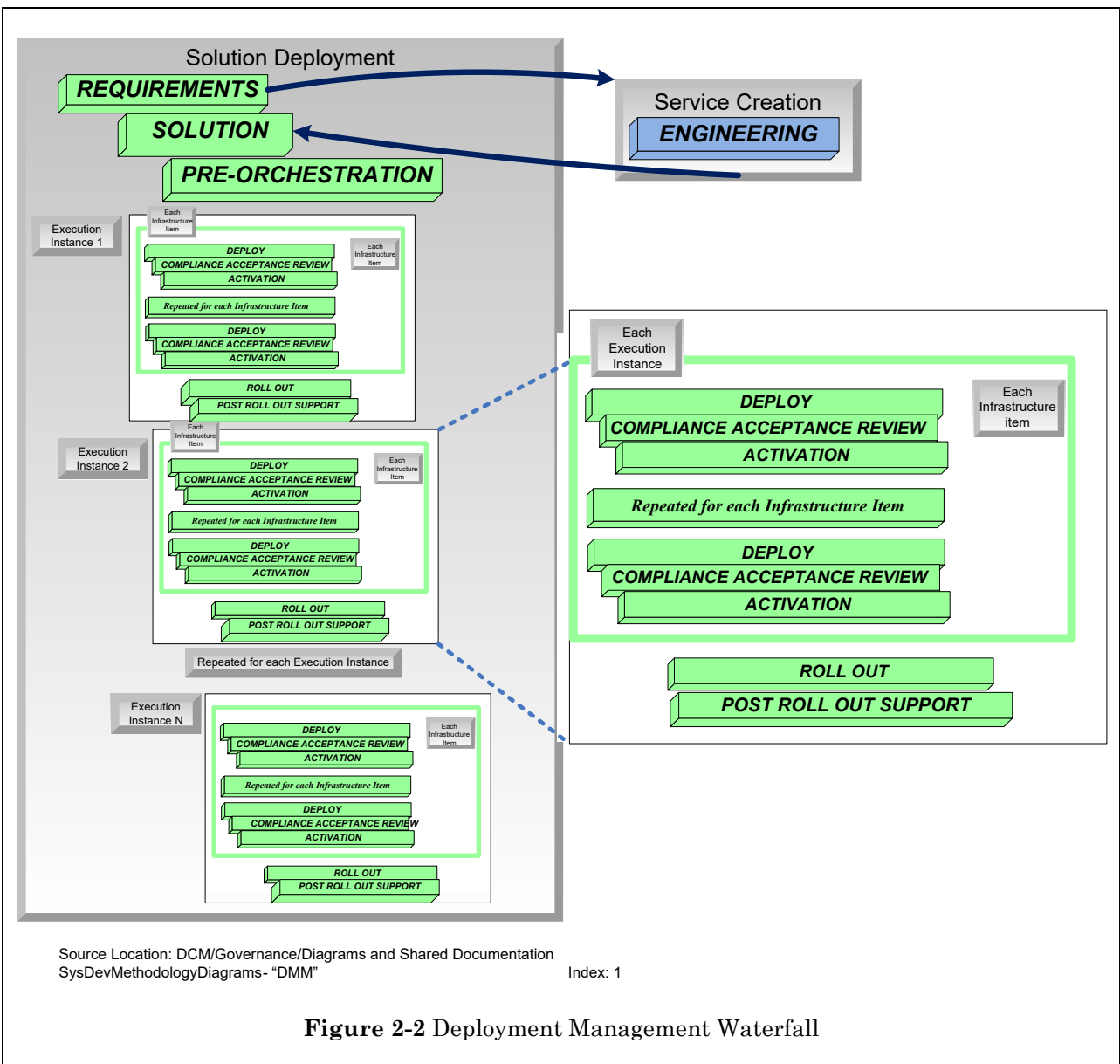
The BlueCross Deployment Management Methodology, as shown in Figure 2 2, consists of Solution Deployment and Service Creation. Solution Deployment consists of the execution of the sequential phases of Requirements, Solution, Pre-Orchestration, the iterative grouping of Deploy, Compliance Acceptance Review, Activation (the Conveyor Belt). After all the infrastructure for an execution instance has been activated, the Roll Out Phase begins and is followed by the Post Roll Out Support Phase, which continues until Work Request closure. Service Creation defines Infrastructure Service Offerings and consists of the execution of the Engineering Phase.



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**NOTE** An Execution Instance is an environment, either for testing or for production use.

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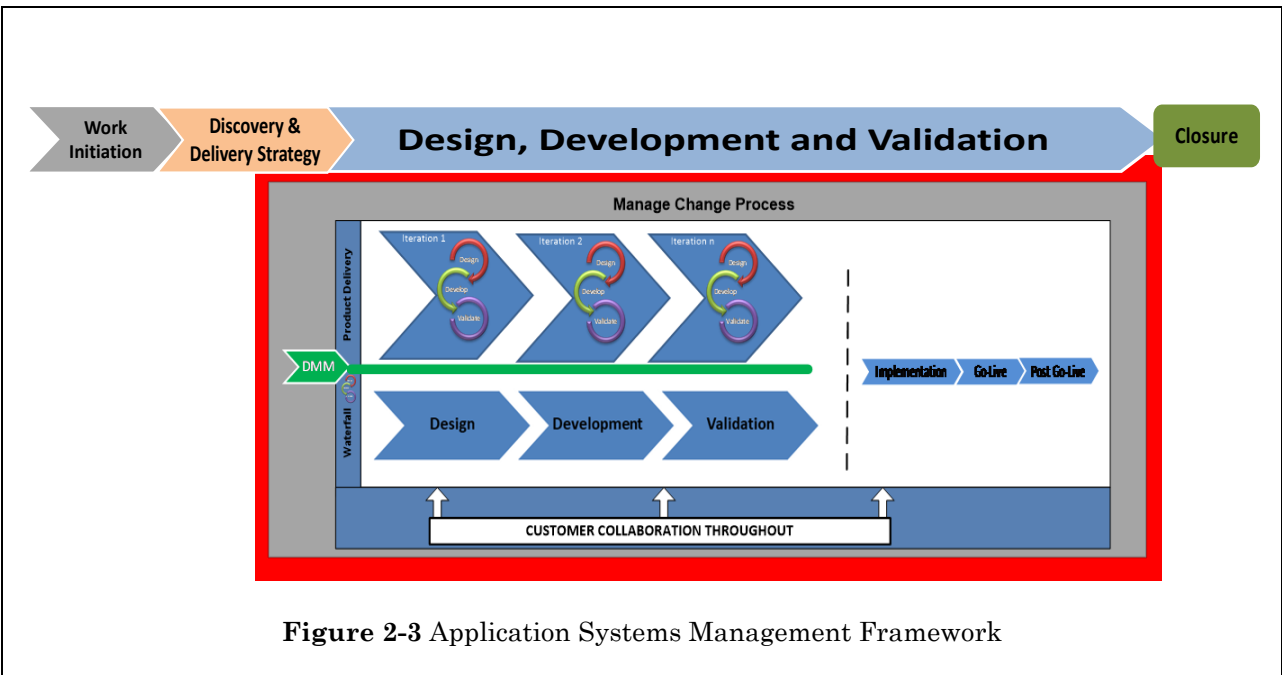


### 2.3.1 Integrating the System Development Methodologies

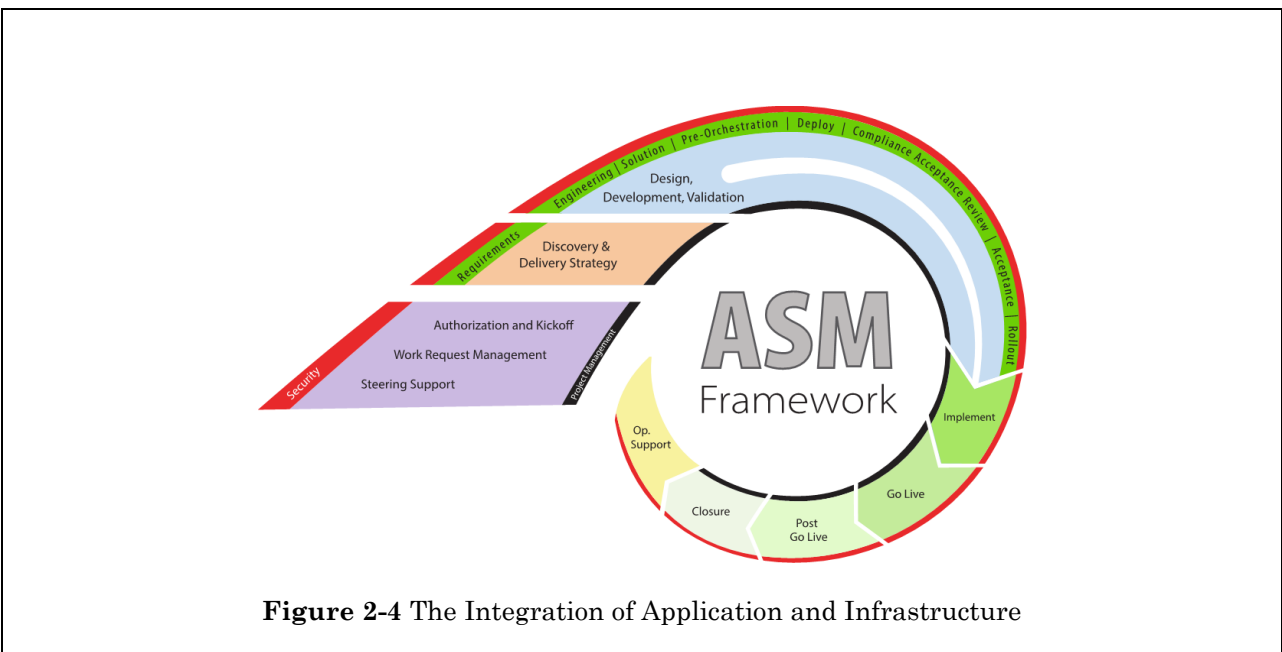
The BlueCross System Development Methodology recognizes the need to have application software development and application delivery coinciding with the development of the infrastructure upon which it executes. The BlueCross System Development Methodology is made up of the Application Systems Management Framework and the Deployment Management Methodology.

The diagram below (Figure 2-3) depicts the interface points between the methodologies and is a guide to the Work Request team on planning the work. The diagram is not meant to imply strict timing.





Another representation of the integrated methodologies is in the diagram below (Figure 2-4), which is copied from earlier in this volume. Keeping in mind that the diagram does not depict timing of phases, it does represent the methodologies.



There are times when changes to existing application software do not require any infrastructure changes. When this occurs, Application Systems Management Framework is executed without Deployment Management Methodology.

## 2.4 Overview of Application Systems Management Framework Development Phases

The following gives a brief overview of each of the phases that comprise the Application Systems Management Framework and the Deployment Management Methodology (DMM).

### 2.4.1 Application Systems Management Framework Phase Overview

The initial phase of the framework is the Discovery and Delivery Strategy Phase, which defines the overall work to meet business objectives. The Discovery and Delivery Strategy Phase is followed by the Design, Development, and Validation Phase. This phase is an iterative phase that includes the Implementation and Go-Live of the work effort. The Post Go-Live Phase provides the continued support from the Work Request team utilizing the Post Go-Live Defect process as well as Break/Fix Incidents.

For a discussion on the process for Post Go-Live defects and incidents, refer to *Service Management > Service Support > Incident Management > Break/Fix Incidents*.

The Application Systems Management Framework phases are listed below:

- **Discovery and Delivery Strategy Phase** — This phase involves processes associated with defining the Delivery Strategy in terms of how to execute the Work Request to define the business, functional, technical, and operational requirements for a given System Development Work Request or a Work Request to delivery other I/S Factory services. Work scheduling and engaging the appropriate resources are included in this phase. Foundational activities are performed during this time, which may include providing the required production and test infrastructure execution environments and the other related I/S Factory operational support and monitoring processes for an application, obtaining licenses, and setting up test regions. The outputs of this phase are requirements, estimates, execution/delivery strategy for the work effort with approval from all Stakeholders and approval to move forward with the work effort.
- **Design, Development and Validation Phase**
  - **Design** — This part of the phase involves processes related to defining the approaches and specifications for how to satisfy the business, functional, technical, and operational requirements and to satisfy any restrictions on the design process itself (such as length or cost) for a given Work Request. This also includes processes related to the installation, configuration and/or modification of the required I/S Factory operational support and monitoring processes as documented in the Design Documentation.
  - **Development** — This part of the phase involves the development of product or services to meet the Business Requirements and perform code reviews.
  - **Validation** — The Validation part of the phase involves processes related to the validation of all of the components of the coded application, delivered platforms, technologies, tools and other I/S Factory-related operational support and monitoring processes for a given Work Request to ensure that they comply with the defined requirements. The changes are demonstrated, if applicable. The production implementation plan is created, and the system documentation is completed. Customer approval is obtained to move the code to production and go live with the code as applicable for customer use.
  - **Implementation** — This part of the phase involves processes related to the implementation of the coded application and/or the required production and test infrastructure execution

- environments, the application and other related operational support and monitoring processes from an end-user perspective.
- o **Go-Live** — Processes related to implementing the final components of a coded product to be fully operational for customer use. During this time, corrective actions are allowed for a fixed period of time agreed upon by the Stakeholders and project team.
- **Post Go-Live Phase** — This phase involves processes related to having completely implemented all the changes to make the final product fully operational for customer use. The outputs for this phase are as follows:
  - o All finalized, effort artifacts
  - o Completed implementation plan
  - o Customer approval to close the effort

## 2.4.2 Deployment Management Methodology Phase Overview

The Deployment Management Methodology is a waterfall methodology, though some phases are executed multiple times. The first few phases are Requirements, Engineering (only when an Infrastructure Service Offering is being developed), Solution and Pre-Orchestration. The iterative phases of Deploy, Compliance Acceptance Review, Activation, Roll Out, and Post Roll Out Support are executed to deploy each Execution Instance needed by the application systems. The methodology concludes with the Post Roll Out Support Phase. This phase provides the continued support from the Work Request team utilizing the Post Go-Live Defect process as well as Break/Fix Incidents.

The Deployment Management Methodology phases are listed below:

- **Requirements Phase** — The Requirements Phase involves processes related to the discovery and high-level documentation providing estimated infrastructure to meet the Business Requirements, along with the infrastructure requirements for supporting the development of the involved application software. Deliverables are created to ensure the accurate capture of infrastructure business needs and functional requirements for a given Work Request.
- **Engineering Phase** — The Engineering Phase involves processes related to the creation of a new or modified Service Offering.



**NOTE** The Engineering Phase is executed only for Service Creation when a new or modified Service Offering is required.

- **Solution Phase** — The Solution Phase involves processes related to the discovery, high-level design, and documentation of application layer communication (Bridge Diagram) through a distributed infrastructure. Deliverables are created to ensure a complete understanding of the relationship between the application architectural design and the proposed infrastructure design for a given Work Request.
- **Pre-Orchestration Phase** — The Pre-Orchestration Phase involves processes related to reserving ICT infrastructure assets to be used in the deployment of specified Computing Instances and/or Leveraged Platform Instances for a given Application or standalone tool within a given ICT Solution and issuing the associated build instructions to be used in the Conveyor Belt Process.

- **Deploy Phase** — The Deploy Phase involves processes related to the execution of the deployment specifications to construct the physical and virtual infrastructure components. This phase includes the installation of the operating system software, any prescribed system management agents, other infrastructure software and system-level patches.
- **Compliance Acceptance Review Phase** — This phase involves processes related to the installation of baseline configuration policies, the submittal of documentation for any baseline exceptions, and the evaluation of the newly deployed infrastructure to ensure that it meets the security and compliance requirements.
- **Activation Phase** — This phase involves processes related to the transfer of knowledge to ensure that BlueCross' Operational Support organizations are prepared to support the newly deployed infrastructure.
- **Roll Out Phase** — This phase involves processes related to the testing and delivery of the infrastructure being provided to the application area for use.
- **Post Roll Out Support Phase** — This phase involves processes related to the corrective actions taken to support any newly deployed infrastructure for the Execution Instances during a fixed time period after the infrastructure is made available to the application areas. The Post Roll Out Support Phase for all Execution Instances ends when the Work Request closes.

## 2.5 Resource Management

### 2.5.1 Resource Management and Planning

Accurate resource planning and assignment is the cornerstone of successful Work Request estimating, scheduling and completion. It is vital for I/S managers to clearly communicate to staff members their Role assignments for a Work Request and the target completion dates.

The overall goals of resource planning are to:

- Accurately manage resource levels.
- Determine the impact of resource changes.
- Determine the impact of workload changes.
- Match the staff member with the appropriate Role based on the assigned tasks.

#### 2.5.1.1 Detailed Resource Plan Maintenance

All I/S managers that have staff contributing to Work Request efforts are required to maintain detailed resource plans identifying the planned number of hours each staff member will be working on the assigned Work Requests. The resource plan must contain sufficient detail to show the number of hours each week that each staff member is expected to work on each Work Request through the completion of their active Work Requests, along with the plan for the next set of Work Requests as the current work nears completion.

I/S managers have a choice regarding the maintenance of their detailed resource plan. They may use the **Management Practice System (MPS)** to maintain the required detailed resource plan, or they may use other tools. If **MPS** is not used, the alternative resource plan must contain an Employee ID, a Work Request number and the number of hours per week that each staff member will be working on each Work Request. The alternative resource plan must be publicly available for review by management and auditable by I/S Process Audit. The existence of the detailed resource plan is required for all active Work Requests. Level of Effort project codes that have standard change sheets defined under them do not require resource planning. For these Level of Effort project codes, their resource plan is the summarization of all of the related change sheets' resource plans.

#### 2.5.1.2 Master Planning Records Maintenance

Along with the detailed resource plan, all I/S managers involved with Work Requests must maintain the data within their Master Planning Records in **MPS**. This information is a reflection of the manpower availability plans at an overall department level for both projects and change sheets. This planning information starts as an outcome of the budget process and then is modified based on resource and business planning changes that occur throughout the year. The planning records must be monitored and adjusted as needed to reflect each manager's anticipated resource plan.

All I/S management is required to keep the employee/manager relationship tables within **MPS** and the **Position Control Database** up to date. These tables identify which employees are assigned to each manager and are used for a variety of reporting purposes. Each manager maintains their individual employee manager table within **MPS**, and any manager/employee relationship updates to the **Position Control Database** must be communicated to the Staff Resource Management area.

### 2.5.1.3 Role Assignment Maintenance

Management and staff discuss what Roles the staff members are assigned. Once agreement has been reached, the I/S Manager updates the ***Position Control Database*** with the agreed-upon Roles. Assigned Roles in the ***Position Control Database*** should reflect those standards.

In the ***Position Control Database***, I/S Managers can view and maintain Roles for staff members. It is the responsibility of the manager to ensure the accuracy of the staff Role assignments. Roles must also be assigned to open requisitions for both full-time employees and contractors. Role assignments associated with a requisition will automatically be transferred to the person filling the requisition.

A suite of reports is available for the viewing of Role assignment data from both a hierarchical and Role perspective. Further information on the Roles feature of the ***Position Control Database*** can be found on the I/S Lighthouse.

## I/S Manager Responsibilities for Roles

### Ongoing I/S Manager Responsibilities for Roles

An I/S Manager's ongoing responsibilities for Roles are as follows:

- Review work efforts to determine the Roles needed to complete the work effort.
- Assign Roles based on the individual work effort characteristics, resource needs and employee skill set.
- Plan for and anticipate future resource demands.
- Ensure that employees understand their Roles and responsibilities.
- Provide the necessary support to help the staff achieve success.
- Ensure that the following standards pertaining to Roles are followed:
  - Only defined Roles may be used.
  - The agreed-upon Roles for each staff member have been captured in the ***Position Control Database (PCD)***.
- I/S managers will use ***MPS*** to update the Roles Lineup Card for each Work Request through the Work Request's life cycle as the Roles are needed and for any staff changes. I/S Managers will notify the Project Managers of any changes in the Roles Lineup Card as they occur.

### I/S Manager Responsibilities in Filling Roles for Work Requests

An I/S Manager's responsibilities in Filling Roles for Work Requests are as follows:

1. Assign staff to ensure that each Role needed to successfully complete a Work Request is filled.
2. Commit appropriate resources/Roles to meet Work Request schedules, including coverage of Scheduled/Unscheduled leave.
3. Inform Project Managers of resource changes, in addition to modifying the Roles Lineup Card in ***MPS***.
4. Update ***MPS*** with the assignments for each Role their staff is filling, including changes in Role assignments.

## Guidelines for Resources Performing Multiple Roles on a Work Request

Based on the combination of the Work Request characteristics, resource needs, and employee skill sets, an employee may perform multiple Roles on that Work Request. The decision for a single person to perform multiple Roles is determined by management. When assuming multiple Roles, the individual employee is accountable for all responsibilities, tasks and artifacts for each Role assigned to them.

## 2.5.2 Roles Lineup Card

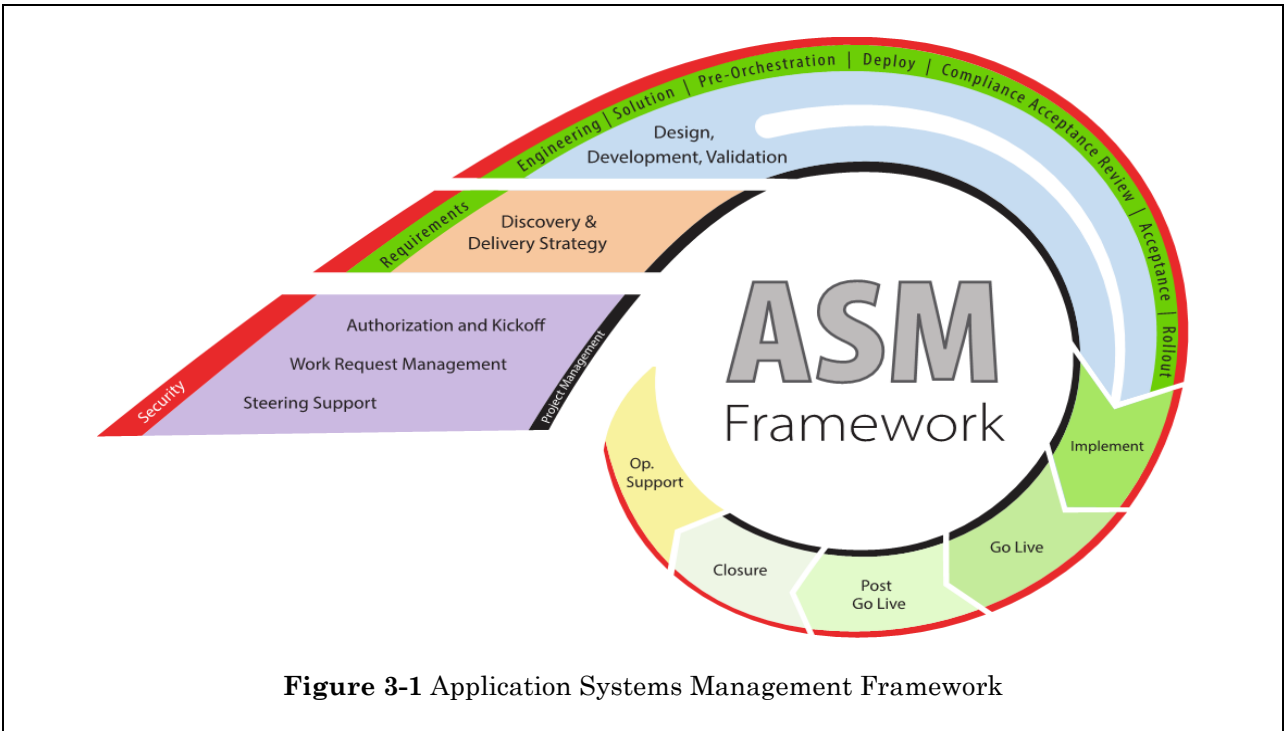
The Roles Lineup Card, available in **MPS**, is another vehicle for listing the Roles throughout the life cycle of a Work Request. The individuals filling the Roles are visible to all of the Work Request team so effective communication can occur and accurate task assignments can be made. Roles Lineup Cards are required for System Development Work Requests. Other types of Work Requests do not require the Roles Lineup Cards.

All I/S managers with resources assigned to a Work Request must notify the Project Manager immediately if an assigned resource is changed.

Those Roles that are only called upon occasionally to provide temporary assistance to the Work Request, such as the Toolsmith or Language Lawyer, are not listed on the Roles Lineup Card.

## Chapter 3 Application Systems Management Framework

The Application Systems Management Framework process (Figure 3-1) supports a structured development methodology (life cycle) to administer all aspects of business requirements definition, design, development, validation, and implementation.





## 3.1 Application Systems Management Framework Roles

Included here are the general descriptions of the Roles and how they fit into the framework.

**Solution System Designer** — The Solution System Designer is responsible for the development and implementation of the end-to-end solution and is also accountable for ensuring that the technical solution satisfies the customer's business need. The Solution System Designer is present when the Business Requirements are defined and ensures that the requirements are translated properly into technical requirements that ultimately meet the business need. The Solution System Designer remains engaged until the Work Request reaches closure, thereby ensuring that the technical solution delivered at the end matches the Business Requirements established during the Discovery and Delivery Strategy Phase.

There is only one Solution System Designer, if applicable, for each Work Request. These Roles may be performed by the same person depending on the Work Request.

**Security Champion** — The Security Champion is the point of contact for the project to the CISO and works to make security-based decisions for the project. The Security Champion understands the security objectives of the project and works with the project matrix leaders (SSD and Architect) to ensure that the projects are meeting the security objectives of the program in a manner that is consistent with the overall vision and strategy of the security program.

**System Designer** — The System Designer is responsible for the development and implementation of the solution for a specific application impacted by a Work Request. The System Designer focuses on the specific application for which he or she has expertise.

**Business System Analyst** — The Business System Analyst is responsible for gathering, discovering, understanding and documenting Business Requirements.

**System Analyst** — The System Analyst is responsible for translating the Business Requirements into technical requirements.

**Software Designer** — The Software Designer is responsible for creating and implementing technical specifications.

**Software Developer** — The Software Developer is responsible for the development and maintenance of system applications.

**System Expert** — The System Expert is the technical expert for a specific system.

**Test Designer** — The Test Designer is accountable for reviewing the requirements for testability and for creating, scheduling and ensuring adherence to the Test Plan created by the Test Designer.

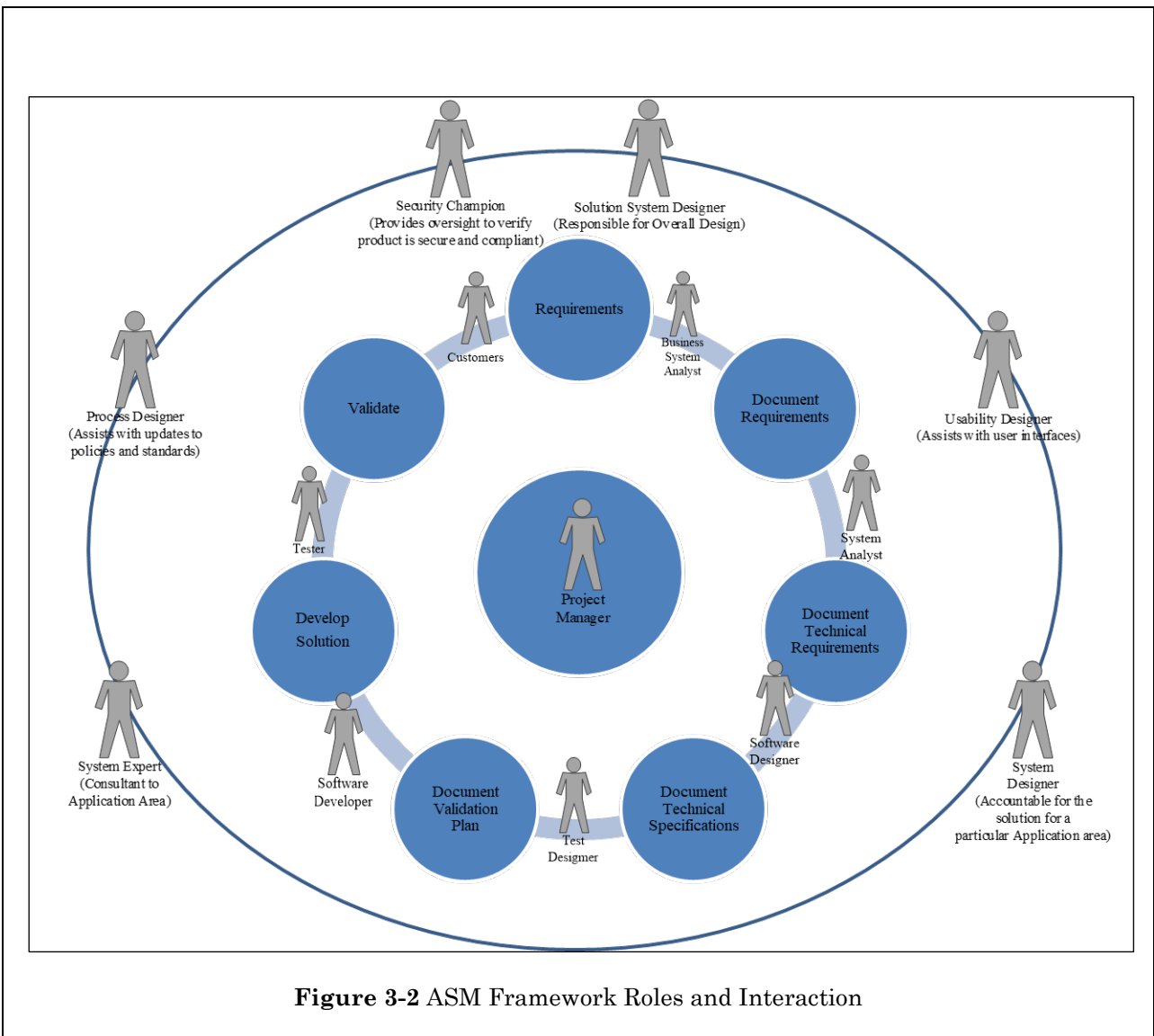
**Tester/Automated Test Developer** — The Tester is responsible for executing the Test Plan or portion of the Test Plan assigned to Enterprise Quality Engineering (EQE) to validate the solution prior to or in parallel with the Customer testers. The Automated Test Developer supports the Tester through opportunities to automate testing in future Work Requests.

**Usability Designer** — The Usability Designer ensures that the end user can use the system user interface.

**Process Designer** — The Process Designer is accountable for consistent use of I/S processes across all application areas. Activities can include, but are not necessarily limited to, Work Request initiation, special design review, code management, and environment assignment and monitoring.

**Security Compliance Specialist** — The Security Compliance Specialist evaluates the security compliance level of the deployed, end-to-end infrastructure solution.

While the entire Work Request team works closely together, it is important to note how the Roles interact. Figure 3-2 illustrates this interaction.



## 3.2 Roles and Deliverables Accountability Matrix

Figure 3-3 below shows how the different Roles participate in the various phases of the methodology. This figure is still in progress. Both the Roles' participation and the status and design of the solution at specific points in development are shown in the artifacts that are produced at different phases. For more legible or printable copies of the Roles and Deliverables Accountability Matrix, refer to the I/S Lighthouse.

Roles assume one of five designations for each artifact.

- A = Accountable for Content — Responsible for the accuracy of the information contained in an artifact.
- D = Delivery of Artifact — Writes, assembles and/or produces an artifact.
- R = Responsible — Managerial or general oversight.
- C = Expected or Frequent Contributor — Provides information or a portion of an artifact or both.
- S = Sign-off — Required to sign off on specific artifacts.

The Project Manager and Solution System Designer are first because they have the primary methodology life cycle leadership Roles. The Project Manager has oversight responsibility (R) almost all the way across, with some artifact (D) and content (A) responsibility. The Solution System Designer is almost always responsible for content (A). People with responsibilities who only occasionally contribute to the Work Request are listed at the bottom. The Architects are important contributors through the Discovery and Delivery Strategy and Design, Development and Validation phases while the Client Advocate for the Work Request focuses on the customer relationship and contributes at different points in the process.



**NOTE** This chart represents all potential artifacts and Roles involved in this methodology based upon the Work Request. The chart is applied as necessary for the Work Request.

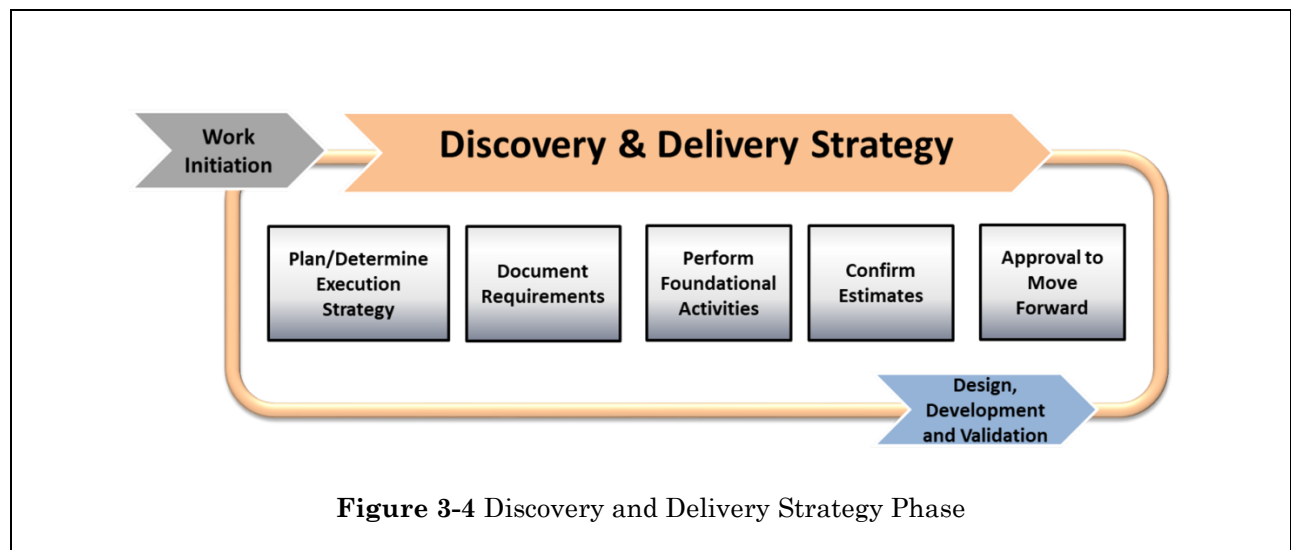
[illegible]

**Figure 3-3** ADM Roles and Deliverables Accountability Matrix

### 3.3 Discovery and Delivery Strategy Phase

The Discovery and Delivery Strategy Phase is the starting point for the Application Systems Management Framework. The essence of this phase is to reach agreement with the customer on what their business needs are. This may require changes to existing systems, or it may require the creation of a new system. During this phase, agreement with the Work Request team and management is reached on the application and Business Requirements, anticipated size of the effort, the execution strategy, the initial target deliverable dates, the I/S teams, Customer areas and Vendors that will participate in the Work Request.

Figure 3-4 depicts the deliverables involved with the Discovery and Delivery Strategy Phase.



The Discovery and Delivery Strategy Phase involves the determination of the Business Requirements. A well-organized and comprehensive plan is constructed to identify the Work Request team, the execution strategy, the tasks, the estimate and schedule to bring those requirements to life. The execution strategy should be approved by the impacted system areas' management. Overlapping and iterative phases may occur throughout the life cycle of the effort.

Once the Business Requirements are understood and agreed upon, the Work Request team will begin planning for the Work Request. The following are things to consider depending upon the Work Request:

- Plan
  - Plan/Determine Execution Strategy
  - Identify key Stakeholders
  - Determine Timelines and Releases
  - Determine the criteria when a work effort has been completed and is operational for the customer
  - Determine the criteria for when a requirement is ready for design, development, validation, and implementation
  - Determine operational impacts
  - Identify resources

- o Develop communication plan
  - o Engage system areas
  - o Determine the method of receiving approvals and the Stakeholders who will be providing approvals throughout the work effort
  - o Determine the approved tools that will be utilized to facilitate delivery
  - o Determine an indicator for when it is time for a review as well as timelines and estimates
- Document Requirements
  - o Review any documentation developed for an effort such as an RFS, R&D results, ROI information, FLE, etc., for information that can be leveraged for the Work Request
  - o Prioritize Business Requirements in collaboration with the customer
  - o Identify any security, compliance and business risk impacts affected by the Work Request
  - o Document acceptance criteria
  - o Determine validation strategy
  - o Document any architectural changes required
  - o Create Concept Diagram
- Foundational Activities
  - o Document access that is required
  - o Determine the physical space and equipment that may be needed
  - o Determine if there are any infrastructure changes and engage Deployment Management Methodology (DMM) if needed.
  - o Set up infrastructure and test regions as needed for development and validation
- Estimates
  - o Create initial estimates

The major deliverables of the Discovery and Delivery Strategy Phase are listed below:

- Execution Strategy
- Requirements Documentation
- Estimates
- Approval to move forward with the effort

## 3.3.1 Requirements Documentation

### 3.3.1.1 Discovery and Delivery Documentation

The purpose of Discovery and Delivery documentation is to provide a detailed overview of the business objective and the work needed in order to accomplish what is in the Work Request. The documentation will define what is to be accomplished, how it will be accomplished (in general) and what operational areas are impacted by this effort. The documentation will define how procedures/environments are going to change. Approval of the documentation and the execution strategy by Stakeholders is required to move forward.

### 3.3.1.2 Business Requirements

The Business System Analyst works with Stakeholders to develop and document the Business Requirements. These requirements can be functional or non-functional, explicit or implicit, but they must be documented in a clear and consistent manner. Above all, these requirements should be testable, ensuring that all parties agree on system expectations and that the problem is clearly defined.

Once the business requirements are completed, they are approved by the Stakeholders.

### 3.3.1.3 Concept Diagram

All applications are required to have a Concept Diagram. If the Concept Diagram has not changed, then a new approved diagram is not required. An existing approved Concept Diagram may be leveraged when this occurs. If a Concept Diagram needs to be created or changed, then the approval process as defined in desk procedures must be followed.

### 3.3.1.4 Non-Working Prototype

A Non-Working Prototype is an optional presentation comprised of screen prints and animation effects to illustrate the current and future functionality of an application.

The Non-Working Prototype will need to be reviewed and approved before moving forward. Any updates to the prototype after the initial approval should be reviewed and approved.

## 3.3.2 Estimates

Once the requirements have been confirmed, there may be a new discovery that may change estimates during the Discovery and Delivery Strategy Phase. The High Level Estimate (HLE) should be reviewed to determine if updates need to be made.

## 3.3.3 Execution Strategy

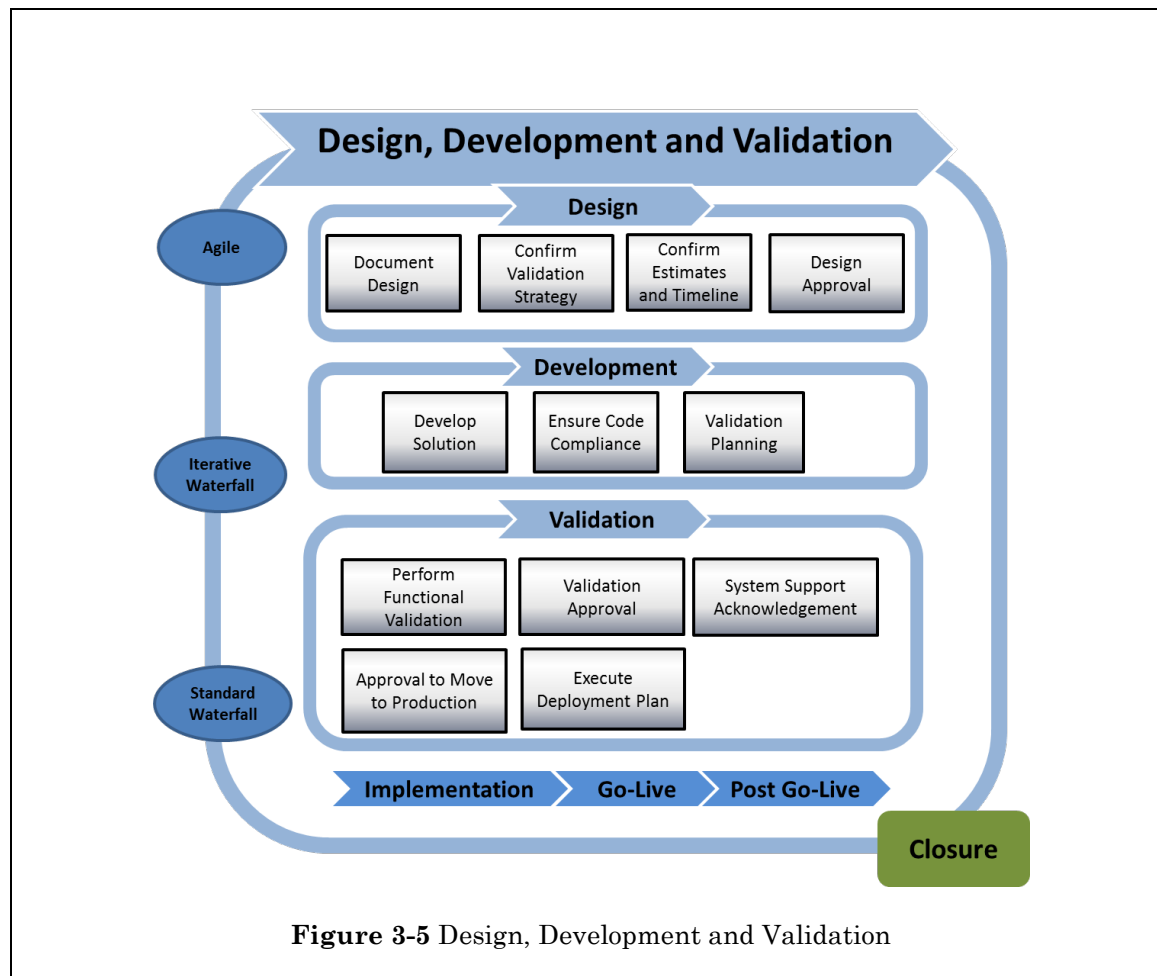
The execution strategy should be determined by the I/S and customer teams assigned to the Work Request and approved by all Stakeholders of the Work Request. The execution strategy includes: the method the team has decided to execute the work effort; whether to use Product Delivery, waterfall or a hybrid approach, the deliverables the team should focus on, the Validation Plan and Implementation Plan.

## 3.4 Design, Development and Validation Phase

The Design, Development and Validation Phase (Figure 3-5) consists of processes related to creating the design for the Business Requirements and to the development, validation and implementation of the Business Requirements. These activities can be done iteratively (including formal sprints) with multiple implementations until all Business Requirements are functional in production.



**NOTE** If the application or infrastructure systems affected by the Work Request impact sensitive information, a member from Security Information Management or Security, Risk and Compliance Assurance (SRCA) should participate in the Work Request.





## 3.4.1 Design

There are several types of information that together comprise the Design Documentation and describe the system changes being proposed. It is the responsibility of the I/S Work Request team to determine which artifacts are required during the Design, Development and Validation Phase for a particular Work Request.

With the design of each requirement, the team has reached concurrence and has a full understanding of how to construct the desired deliverable. The functional approach for each requirement is detailed, designed and reviewed for approval as the documentation is created. The estimates and schedule that the team has produced should be viewed as a commitment by all parties.

The deliverables of Design are:

- Document Design
- Confirm validation strategy
- Update Concept Diagram, if applicable
- Update Non-Working Prototype, if applicable
- Confirm timelines and estimates
- Approval for the design based upon the Discovery and Delivery Strategy Phase

### 3.4.1.1 Technical and Other Design Considerations

The Design includes application system changes as well as changes to the other system architecture components. The execution strategy should be reviewed to determine what the team focus should be. The validation plan and go-live plan for the execution strategy should be considered during Design. For a full list of additional design considerations, please refer to the *Work Request Considerations Document* on the I/S Lighthouse.

## Security Considerations

Security requirements must be incorporated, when appropriate, to ensure compliance with applicable security regulations and policy, and also to identify potential, security-relevant risk areas and recommend risk reduction measures. Staff from Security, Risk and Compliance Assurance will assist with the incorporation of security measures.

## Credit Card Account Information Considerations

The testing requirements for any Work Request that impacts application systems or infrastructure that contains Credit Card Account Information must include representation from Security, Risk and Compliance Assurance. There is extensive testing for compliance with the standards in the *Security Management Volume* of the ISSM. The resources and scheduling for testing must be included in the Test Plan as well as the Work Request Plan.

## Testing Environment Considerations

In addition to the functionality of the applications, the test environments need to be evaluated to determine if there any changes needed to support the validation of the Work Request. The changes must

be documented and reviewed by the Work Request team. This should be done during the Discovery and Delivery Strategy Phase and revisited during the Design, Development and Validation Phase.

## Support Considerations

System Support or Operational Support areas often contribute to the success of a Work Request by performing specific tasks during a System Development Work Request. When there are tasks that must be completed by Support areas, the Project Manager, in collaboration with the Work Request team, is responsible for engaging Support resources early in the Work Request planning process. These Support tasks must be defined and included in the Work Request task lists. Examples of Support tasks include code moves, server builds and configuration changes. Since Support areas will be responsible for supporting the Application and Infrastructure after implementations, Support areas should be invited to the appropriate I/S reviews that have Support implications so that they will be aware of required tasks and impacts to the systems. By including Support resources early in project planning, several benefits will be realized. For example, project risk, especially as related to project schedules, will be reduced. Support areas will then be able to plan their work and ensure that required resources are available to support all required project activities.

### 3.4.1.2 Functional Design Activity

When needed, the possible deliverables of the Functional Design Activity are listed here and described below.

- User Interfaces
  - o CICS Screen Mock-ups
  - o Report Mock-ups
  - o Wireframes with corresponding Site Maps for Web applications
- Functional Approaches
- Technical Architecture Documents if requested by an Architect, along with the (Initial) Concept Diagram
- (Final) Non-Working Prototype

## User Interfaces

There are three primary user interfaces that may be required:

1. CICS Screen Mock-ups
2. Report Mock-ups
3. Wireframes

Reviews with the customer should be conducted early in the Design, Development and Validation Phase to ensure that the design of the solution meets the customer's business need.

## CICS Screen Mock-ups

CICS Screen Mock-ups are a basic visual guide to describe to the customer the content, general format, intended audience or recipients, and presentation of a screen. They provide a visual reference upon which to structure each screen. CICS Screen Mock-ups allow for the development of variations of a

screen to maintain design consistency throughout the screen functionality of an application. They create user expectations and help the user develop an awareness of and familiarity with the screens. The creation of the CICS Screen Mock-ups may be iterative in nature depending on the Work Request.

New screens and any changes to existing screens are made in collaboration with the customer. The review of these screens whether through a mock-up or a real-time meeting with the customer may be ongoing until the customer provides final approval.

## Report Mock-ups

Report Mock-ups are a basic visual guide to describe to the customer the content, general format, intended audience or recipients, and presentation of a report. They provide a visual reference upon which to structure each report. Report Mock-ups allow for the development of variations of a report to maintain design consistency throughout the reporting functionality of an application. They create user expectations and help the user develop an awareness of and familiarity with the reports. The creation of the Report Mock-ups may be iterative in nature depending on the Work Request.

New reports and any changes to existing reports are made in collaboration with the customer. The review of these reports whether through a mock-up or a real-time meeting with the customer may be ongoing until the customer provides final approval.

## Wireframes

Wireframes are a basic visual guide used in graphical user interface (GUI) design to suggest the layout of fundamental elements in the interface. They provide a visual reference upon which to structure each GUI screen or web page. Wireframes allow for the development of variations of a layout to maintain design consistency throughout the site. Wireframes create user expectations and develop an awareness of and familiarity with the user interaction. Wireframes also define the positioning of global and secondary levels of navigation in a prominent and intuitive position as well as provide an area for utilities such as helpful information and search facilities.

Wireframes should be reviewed by the I/S project team prior to being reviewed with the Architect. Customer approval of the wireframes is required.

## Functional Approaches

The approaches from the Discovery and Delivery Strategy documentation are expanded to include the technical solutions for each requirement by system function. The intent is to show a complete understanding by the team of how each approach will provide a technical solution for the Business Requirements.

When there is new technology, new core functionality or a new core component involved, the Enterprise Architect and Architects are required. The Enterprise Architect will need to provide approval of the Functional Approaches in this instance.

## Technical Architecture Documentation

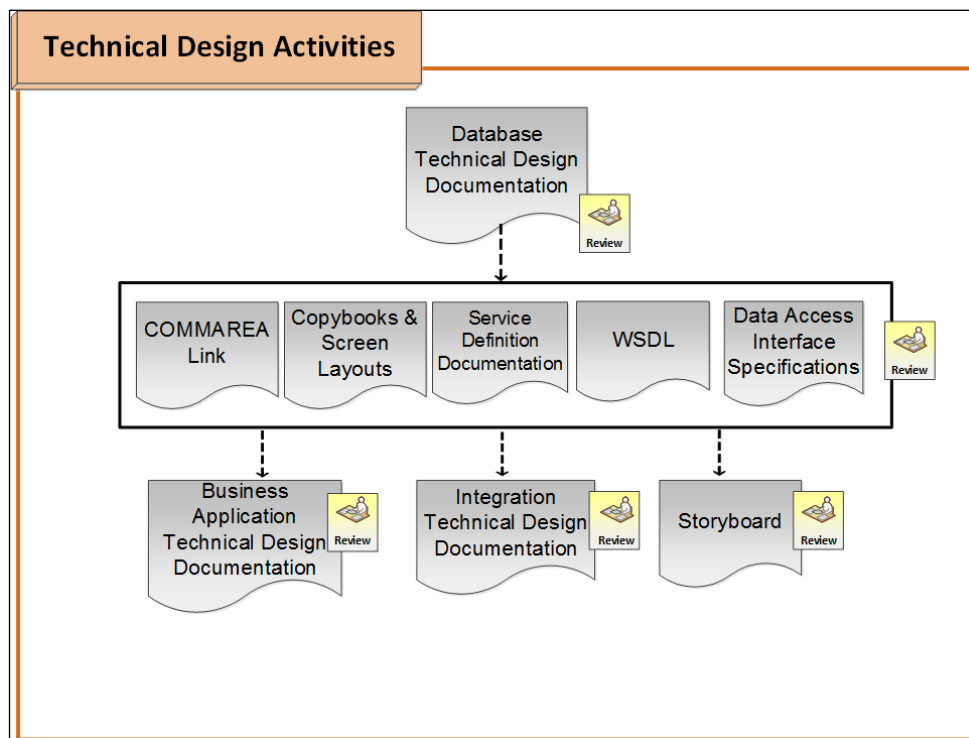
The Technical Architecture Documentation expands the Concept Diagram into more detailed components and explains how the components will implement the Business Requirements. The Solution

System Designer and the Architects must review the documentation, which should be included in the Design Documentation if applicable to the Work Request.

## Non-Working Prototype

For information regarding the Non-Working Prototype, refer to *Application Systems Management > Application Systems Management Framework > Discovery and Delivery Strategy Phase > Requirements Documentation*.

### 3.4.1.3 Technical Design Activity



**Figure 3-6** Technical Design Activities (Deliverables and Reviews)



**REQUIREMENTS REMINDER** Technical Design Documentation to meet the system requirements are defined during this phase. There should be a good mapping of the Technical Design Documentation to the business requirements. Taken together, they show how business requirements are to be satisfied. Not all documentation will be applicable to a Work Request.

Previously mentioned Functional Approaches are a high-level description of the objectives and approaches for an effort. For each objective or approach based upon the Work Request, some or all of the deliverables (listed here and described below) are created during the Technical Design Activity (Figure 3-6).

- Database Technical Design Documentation
- Web Services
- CommArea Link
- Screen Layouts (elements developed in UNIT1)
- Service Definition Documentation
- Web Service Description Language (WSDL) Technical Design Documentation
- Data Access Interface Specifications
- Business Application Technical Design Documentation
- Integration Technical Design Documentation
- Storyboard

## Database Technical Design Documentation

The Database Technical Design Documentation provides a basis on which database files are created or modified. The Database Technical Design Documentation provides a description of the logical and physical designs of the creation of or changes to the databases impacted by the Work Request. The responsibility for the creation of this documentation is a collaborative effort between the Database Administration area and the application areas responsible for the systems utilizing the database.

The Database Technical Design Documentation is created when there is any database impact within the Work Request. Refer to *Technical Standards — Applications > File Design* for helpful design considerations.

## Operational Database File Documentation

Once the logical design of a database is completed, there is no effort to maintain the logical model. The logical model is used to develop a physical database, and all database documentation becomes Operational Database File Documentation. All Operational Database File Documentation is automated and can be system generated. This is helpful when modifying an existing database. The Database Administration area can assist with this process.

## Web Services

A Web Service is a set of software components, typically crossing multiple platforms that, when executed, results in the required data being made available to another software component.

The need to develop a Web Service is documented in the Service Definition Documentation. Once approved, the Service Library is updated with the information from the Service Definition Documentation.

There are two types of Web Services currently in use at BlueCross: Screen-based services and COMMAREA-based services.

## COMMAREA Link

Due to the actual executable version of the COMMAREA Link being needed in order to design the Web Service, the Copybook and a skeleton program are created and compiled.

## Screen Layouts

The Web Service can be based on a set of CICS screens, typically already in use. The screens are accessed by the Web Service.

To create Service Definition Documentation for a screen-based service, the screen layouts must be generated in the Software Configuration Management system using the ***Application Productivity System (APS)***. This screen layout must be created during the Design phase of the Work Request and must be reviewed and approved.

## Service Definition Documentation

Service Definition Documentation includes information about the transactions, screens or COMMAREA programs that the service will use, and also information about the inputs and outputs. This documentation is the means by which to request approval from the Architects and the Enterprise Architect to create or modify a service. The Service Definition Documentation is then used to create the WSDL Technical Design Documentation.

## Web Service Description Language Technical Design Documentation

The Service Definition Documentation is used to generate the WSDL Technical Design Documentation used to describe Web Services in Extensible Markup Language (XML). The WSDL is created by the SOA Express tool and defines the inputs and outputs of the Web Service. This is a preliminary description of the Web Service, which is used by the Presentation Layer Team to finalize the design.

After the Integration Layer Team reviews the documentation, a review is conducted with the Presentation Layer Team members to communicate this portion of the design.

## Data Access Interface Specifications

The Data Access Interface Specifications describe the way the Presentation software can use the Web Services created by the Integration areas. The specifications include descriptions of inputs that the Data Access components will use (diagrams, models, logic, etc.) to describe the programming needed to meet the Business Requirements and I/S standards. The Data Access Interface Specifications will be used to develop the Presentation Technical Design Documentation for Data Access.

## Business Application Technical Design Documentation

The Business Application Technical Design Documentation includes the specifications for new and changing application software configuration items and serves as documentation that a Software Developer can use to code.

If there is an impact to job flows, a representative from Systems Support should be included in the Business Application Technical Design Documentation review.

If there is an impact to MQ, a representative from the ICT Technical Support MQ Team should be included in the Business Application Technical Design Documentation review.

## Integration Technical Design Documentation

Integration Technical Design Documentation is the Technical Design showing what the Web Service will be and how it will be used and serves as the documentation that a Software Developer can use to code.

### Storyboard

A Storyboard may be produced if there are any changes to the existing end-user presentation or if there are new pages, frames or portals being developed. The deliverable depicts how the user will interact with both the product and the system. The Storyboard must be reviewed and approved by the I/S project or product team.



**NOTE** e-Business Communications and Brand Compliance must approve all content for Commercial Systems Internet channels. In some instances, the Law Department may need to be consulted concerning the content.

## 3.4.2 Development

Development includes the processes related to the creation, modification, or the evaluation of Application Software/Infrastructure to ensure that it complies with the requirements of a given deliverable.

Development activities may include:

- Develop solution
- Provide evidence that the code complies with the standards
- Perform Functional Validation
  - o Technical, Experiential and Non-Functional
- Lessons Learned Sessions
- Development Go/No Go Decision

### 3.4.2.1 Validation Planning

Validation is performed to ensure that code has been developed for a deliverable accurately. With input from the Test Designer(s) and other appropriate team members, the Testers create a validation plan. The validation plan should include the test cases/user stories/abuser stories that will be validated in the test regions determined during the Discovery and Delivery Strategy Phase. The plan should also include the strategy for validation, which will include how the validation will be completed, types of validation required and when the testers will be expected to begin their validation. The team (I/S and customer) will review collaboratively and provide approval of the plan.

### 3.4.2.2 Coded Product

The Coded Product is the created or modified Database Software — Application, Integration or Presentation software that meets the requirements defined in the Discovery and Delivery Strategy



Phase and that matches the Technical Design Documentation created during the Design, Development and Validation Phase. This is the culmination of the software coding activities.

## Coded Product Content

The content of the Coded Product is what was outlined by the System Documentation within the Application Design Documentation, primarily the Technical Design Documentation.

The Code Compliance Acknowledgement section below serves as the approval process for the Coded Product. The appropriateness of the Coded Product is proven through the I/S Validation, Functional Validation and subsequent validation in the System Test and QUAL environments.

## Code Compliance Acknowledgement

It is vital that all software changes are developed in compliance with the ISSM technical standards, utilize the Concepts and Techniques standards, and are constructed of high quality, maintainable code. This helps ensure that all of these are achieved prior to promotion to the System Test Source Configuration Management location and validation of the code. All changes are to be reviewed to ensure that they are in compliance. The review of the coded software considers these items:

- Standards (code & naming)
- Computer language efficiencies
- Conformity to existing logic
- Special exits
- Special recoveries or backups
- Database standards
- Conformity of the source code to the Technical Design Documentation
- Source Code complying with the Concepts and Techniques

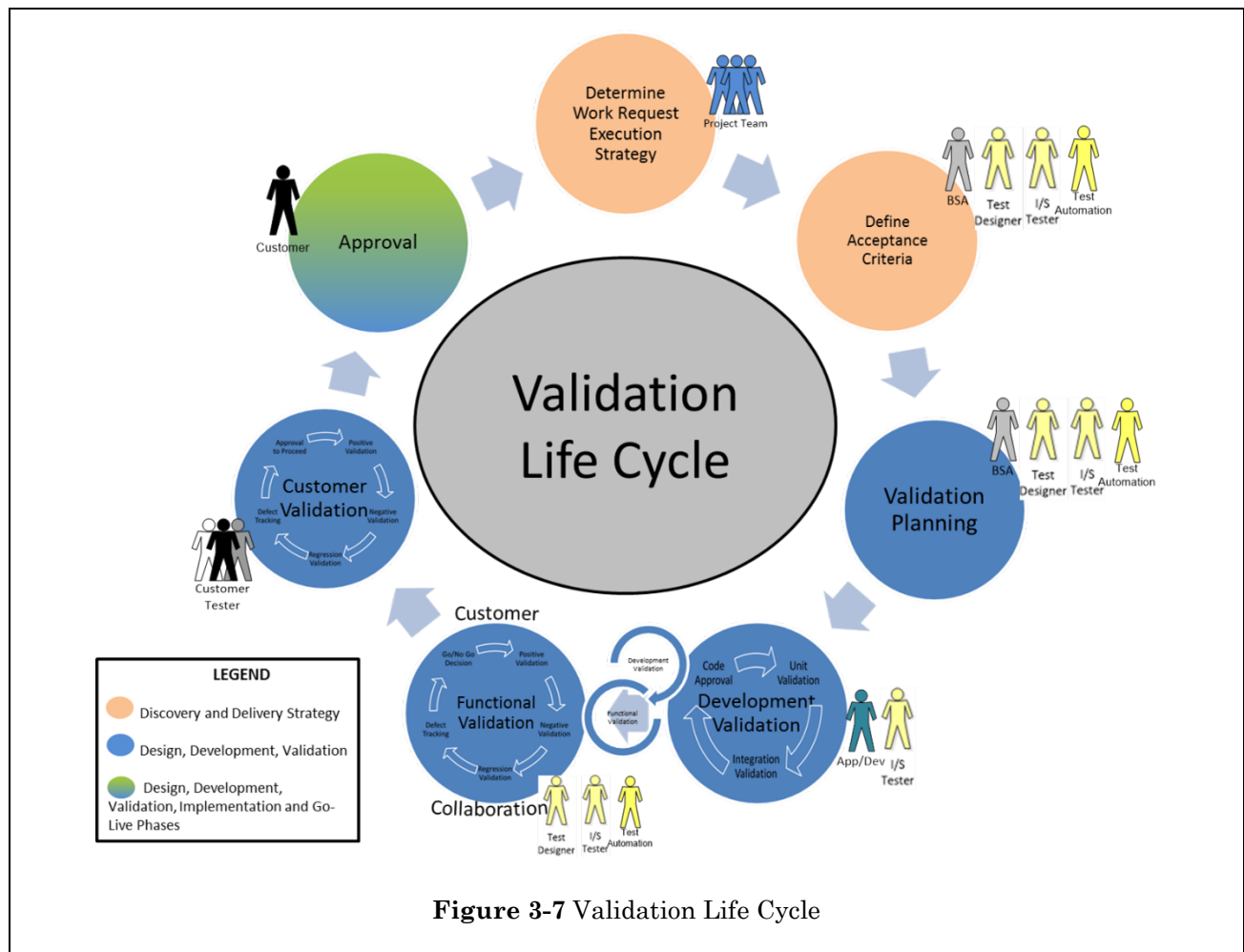
Evidence will need to be provided to show that the code complies with the ISSM technical standards.

### 3.4.3 Validation

Validation (Figure 3-7) encompasses the processes related to the evaluation of modified or newly created application software to ensure that it complies with the requirements of a given deliverable.

Validation involves the integrated functional validation of all components that are targeted for implementation, including the use of the infrastructure on which the application will execute.





### 3.4.3.1 I/S Validation

I/S Validation is the process of verifying that software and hardware modules are designed correctly and function as expected.

This validation is technical and focuses on specific components of the software or hardware. I/S Validation should occur on the same workstation infrastructure that will be available in the operational environment. I/S Validation may be performed by an application/development resource or an I/S Tester.

### 3.4.3.2 Functional Validation

Functional Validation is a subphase of Validation. In this subphase, I/S performs specialized validation activities prior to Customer Validation. This validation is designed to ensure that the software product meets Business Requirements and functions without error. The validation is performed in the System Test environment and possibly in the QUAL environment. QUAL validation is not performed for all Work Requests.

### 3.4.3.3 Customer Validation

Customer Validation is when the customer performs user acceptance validation in the System Test and QUAL test environments, if applicable for the Work Request. The customers use their validation plan to perform validation against the agreed upon Business Requirements as defined by the Work Request.

Upon completion of the Customer Validation, the customer will provide approval to move to the next environment.



**NOTE** The Infrastructure on which the application systems are executing are being scanned and remediated on a scheduled basis. Any findings that are the result of the application system will be remediated by the application development or support teams. This is referred to as “Scheduled Compliance Review & Remediation.”

### 3.4.3.4 System Documentation Manual

The System Documentation Manual (SDM) must be maintained for each production system as part of any Work Request. Changes should be drafted during Design, and the draft version is included in the Design Documentation materials. The SDM must be finalized and presented as a component of the System Support Acknowledgement Approval.

### 3.4.3.5 System and Operational Support Acknowledgement

This deliverable encompasses the processes related to the transfer of knowledge to ensure that system support organizations are prepared to support the newly deployed application defined for a given Work Request, and the Operational Areas that will be using the newly deployed application have process and procedures updated for use.

Before the application system can be deemed operational, the organization responsible for its support needs to acknowledge this responsibility and their understanding of its components. The System Support organizations are responsible for ensuring that the information they are provided is sufficient for them to perform their execution and support functions.

### 3.4.3.6 Lessons Learned

Refer to *Application Systems Management > Project Management > Task Management > Lessons Learned*.

### 3.4.3.7 Implementation Plan

The purpose of this documentation is to define and orchestrate the implementation of the coded product, to ensure that all Stakeholders are in agreement that the coded product is ready and to ensure that all documentation is in place. There may be multiple implementation plans depending on the Work Request.

The plan should include what deliverables are being deployed, the activities required to deploy the coded product and the responsibilities of each team member and customer participant. There should also be a back out plan included that identifies the procedures to be executed to remove the coded product from production and the responsible personnel for each activity. The plan must also include the decision maker responsible for making the decision for removing the coded product from production.

## 3.5 Implementation Phase

The Application Production Implementation Plan approved in the Design, Development and Validation Phase drives the activities for implementation.

Implementation consists of the action(s) of deploying requirements into the production environment. Not all of the product components are necessarily deployed into the production environment at the same time but may be phased in over a period of time based upon the implementation planning. The coded product may or may not be live, meaning that it may not be functional for operational use. When a coded product is deployed and is functional for operational use that is considered “Go-Live.” When all coded products for a Work Request have been implemented and are functional for operational use, then that is considered “Post Go-Live.”

The deliverables of Implementation are:

- Implementation Plan
- Compliance/Security Acceptance Review, as applicable
- Stakeholder/Customer Approval

### 3.5.1 Implementation Validation

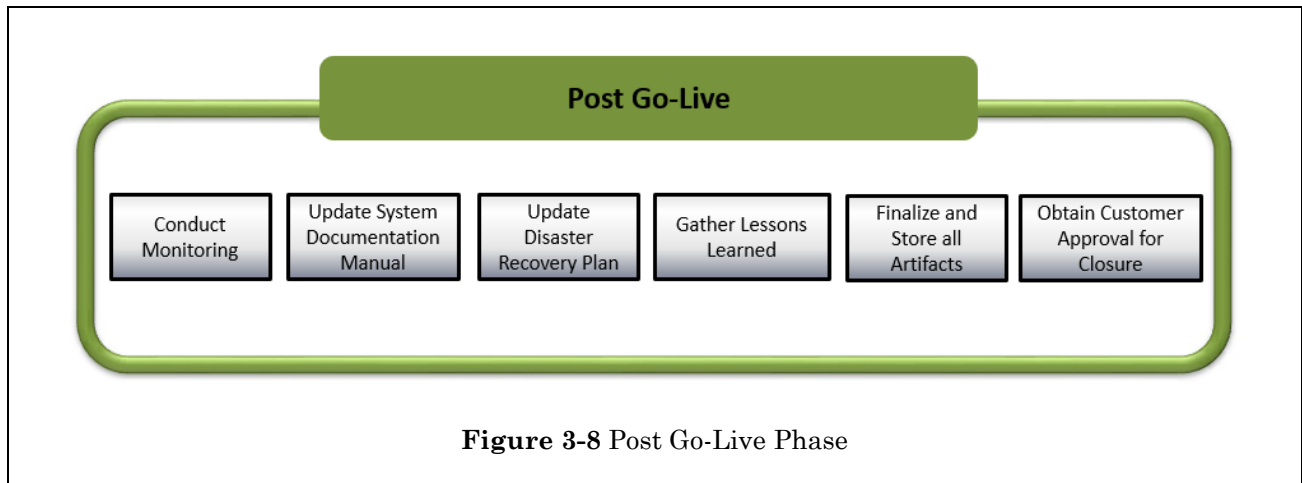
The sign-off for Implementation Validation provides customer acceptance of the coded product implemented, establishing that they are satisfied with the results and are allowing full operational use.

## 3.6 Go-Live Phase

Go-Live is defined as when a component has been implemented into production and is now operational for customer use. Customers are to validate that the component is now operational and is functioning as expected. There is a monitoring period that consists of defect tracking and correction as necessary, which is considered Post Go-Live.

## 3.7 Post Go-Live Phase

During this phase (Figure 3-8), coded product implementation will be assessed and any identified defects that are directly related to the design, implementation or the result of coding errors will be analyzed and corrected as necessary. Defects and/or requested enhancements that are outside the scope of the current effort will be identified and forwarded to the appropriate steering committee. The period of time an effort remains in the Post Go-Live Phase will be agreed between I/S and the Stakeholder. All of the final artifacts required for the effort will be reviewed.



## 3.8 Closure

During this phase, a plan for all remaining defects will be created and approved by all Stakeholders. All artifacts are finalized and uploaded to ***SharePoint***. Customer approval to close the effort is obtained and uploaded into ***SharePoint***.