Rutgers University

Office of Information Technology

PROJECT MANAGEMENT

METHODOLOGY

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# INTRODUCTION

The Project Management Office (PMO) within The Office of Information Technology (OIT) division at Rutgers University has developed the Project Management Methodology that provides a common set of guidelines and tools for all IT employees. This Project Management process and the accompanying templates are designed to assist IT staff in successfully managing projects. This process is meant to be scaled to fit the size, complexity and security classification of the project. We refer you to **Appendix B – Project Artifact Checklist** for guidance on which processes and associated document artifacts would best fit your project. The primary objective in publishing the Project Methodology Guidelines is to facilitate the spread of proven project management and system development lifecycle (SDLC) techniques and standards. The expected benefit is that Project Managers can use these techniques and standards to meet or exceed project stakeholder’s expectations by:

## Delivering on Time

A project's activities must be carefully documented through task development in a logical format defining all dependencies. This methodology describes in detail a process to develop a proper project schedule which takes into account the availability of all project resources and helps to reasonably predict when the project can be completed.

In some case, projects have a pre-defined completion date due to organizational business decisions or other project dependencies. On these “time constraint” type projects, a project manager must pay special attention to ensuring that the project has adequate resources, including alternate resources, to meet the project deadline without impacting scope as well as developing contingency plans to meet anticipated risks.

## Completing within Budget

In certain instances, it is imperative for both the project manager and the organization to have an estimated budget when undertaking a project. The project budget should include such items as the cost of internal resources, vendor maintenance costs, upgrades, system growth and refresh costs. The PMO strongly suggests a 5 to 7-year budget be developed.

## Completing within Defined Scope

This project methodology introduces a concept of outlining the scope of the project in what is referred to as defining “Success Criteria”. It is a project objective with realistic measurable outcomes, if possible with quantifiable measurable outcomes. From the Success Criteria, we further define “High Level Achievements” or HLAs. The HLAs are further broken out to detailed tasks on the project.

The format of this document was created to offer a recommended timing of the use of the processes and associated forms; and to explain the meaning of key terminology used throughout all projects.

One of the most important things to understand is that successful Project Management requires flexibility because not all projects are executed the same since business and environmental factors are always changing.

The methodology contained in this document is not intended to be a cookie cutter approach where all of the discussed project components are always executed in the same way for every project. Project size, complexity, security posture and criticality all play a role in determining the correct project controls and documentation to apply. We refer the reader to [Appendix B –](#_Appendix_B_–) The Project Artifact Checklist as a guide to determine the process and artifacts which are suggested to complete.

Note: If appropriate, vendor documentation, ex. test plans, test results, etc. can be used in lieu of required internal documentation if they are complete, accurate, and meet the defined documentation output. All PMO templates referred to in this document can be viewed by the clicking the template link references within this document.

This methodology follows what is known as a traditional “waterfall” process, meaning steps are ordered sequentially. There are other PM processes used in the industry. This is the simplest. Some sub process may be more iterative in nature, such as the system development process. However, the phases of the project are ordered:

**Project Phases (Waterfall Methodology)**

* Initiating
* Planning/Design/Development
* Executing/ Controlling
* Closing

## Understanding Your Project

### Data Classification

The type of data a system may store, display or transmit is important to understand for determining the correct project controls to apply. To this end OIT Information Protection and Security Services (IPS), has identified the following data classifications:

* Restricted
* Internal
* Public

Together with the size of a project, a project manager should determine the appropriate System Development Lifecycle documentation to create as part of the project

### Project Size:

* Small: <500 hrs. labor
* Medium: 501 – 2,000 hrs. labor
* Large: > 2,000 hrs. labor

# PRE-PROJECT PLANNING

Pre-Project Planning is not an integral part of this project management methodology as it originates in the business or requester domain. However, a project manager can assist a Project Requestor and Sponsor in creating a Project Service Request or Project Feasibility Study, if requested. These documents are a great first step in defining the business needs.

## Project Service Request

The Project Service Request (PSR) is a simple web based form for collecting information which the PMO needs for initiating projects. The purpose of collecting the following data is to help with determining the nature of the inquiry. If you are using this methodology within your department and you do not require a PMO Project Manager, then you DO NOT need to fill out a PSR. The PSR can be access by: https://oitpmo.rutgers.edu

Minimum Required Fields:

* Project Type
* Funding Availability
* Requested Start Date
* Requested End Date
* Business Need
* Environments
* Number of Users
* Requestor contact info

## Project Lifecycle Overview

A high level graphic depiction of the PMO methodology project life cycle is provided in Figure 1 - High Level Overview - Project Lifecycle

PROJECT PHASES & KEY ARTIFACTS

Figure 1 - High Level Overview - Project Lifecycle

# INITIATING PHASE

The Initiating Phase is where the project formally begins; this is when the Sponsor, Project Manager, and Steering Committee officially authorize the project by defining the project’s Success Criteria and High Level Achievements (HLAs) and developing the remaining Project Charter components. The Project Charter is the main artifact or document artifact of the initiating phase.



Figure 2 - Initiating Phase

## Project Manager’s Role

The Project Manager is the primary person responsible for leading the team successfully through each phase of the project.  The Project Manager leads a team in a matrix organization through the agreed upon project management methodology processes and fulfilling the expected outcomes for scope, time and budget.

## Project Sponsor’s Role

The Sponsor is usually the person who requested the project. The Project Manager meets with the Sponsor to secure agreement as to the Sponsor’s role in the project.

Sponsor Responsibilities:

* Promotes the project to the University – addresses conflict/issues with other senior executives
* Assists in securing resources (including budget) necessary to complete project artifacts
* Communicates project status to executive management
* Ensures project alignment with university’s strategic goals and priorities
* Participates as a member or chair of the project Steering Committee

## Project Manager and Requester Discuss Project

The Project Manager and Project Requester meet to discuss the overall project and review the Project Service Request (PSR) in detail, if applicable. The project’s business objectives, obstacles, funding, etc. will need to be identified.

## Identify Co-Project Manager

The Project Manager and Requester discuss who should be designated as the Co-Project Manager for the project. The Co-Project Manager is the person assigned to the project from the department, unit or school which has a major stake in the success of the project. The Co-Project Manager provides detailed knowledge of the department’s operations and processes and acts as a subject matter expert (SME).

The Co-Project Manager will work hand-and-hand (day to day) with the Project Manager and will ensure that the affected department/school management is kept aware of the team’s progress, possible risks, and assist in the escalation of issues as needed.

It is important to note that a substantial investment of time may be necessary from the Co-Project Manager to act in this role. The time investment varies based on the scope of the project. The Co-Project Manager’s supervisor must be aware of this commitment and agree in advance to allocate the appropriate resource time for this role. In some cases, this might mean backfilling the Co-Project Manager’s normal job duties with an alternate or temporary resource.

The Co-Project Manager should have excellent communication and planning skills; be able to handle difficult vendor situations; address team issues; and communicate status to executive management.

Note: As the Project Manager and Co-Project Manager share responsibility for planning and executing the project, from this point forward, the term Project Manager(s) will be used in this methodology document.

## Guiding Principles

The purpose of the [**Guiding Principles**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Guiding%20Principles%20-%20Template%20v8.0.docx) is to direct and help to resolve questions, concerns or issues that inevitably surface during the course of project execution.

Guiding principles are rules, statements, objectives and goals that have been established by project members, initially and primarily by Executive Management or Sponsors, during the project initiation phase intended to give the project team a series of broad decision points to be used in making decisions on their own without Executive Management or Sponsor involvement. This document is optional and should be used when it can assist the project teams establish a framework for future project related decisions.

Establishing Guiding Principles

Common Guiding Principles tend to address the following:

* Address compliance to stated business strategies
* Known conflicting points of view for execution or development
* Restate or confirm stated business objectives or goals
* Desired outcomes of the final product or solution
* Standardization or integration with existing business, systems, or functions
* Areas of concentration or focus for the project team

Guiding principles should be read and understood by all project participants, however, when a question, issue or conflicting idea arises, the guiding principles should be reviewed and consulted to determine if the question, issue or conflicting idea is addressed and can be answered by one of the guiding principles. In cases where none of the guiding principles applies, the issue at hand should be handled through the Decision Register Process where the Project Sponsor or the Executive Management team can be consulted for a decision.

If the project consists of analysis of new or old business processes for the purposes of choosing or architecting a new system this artifact is considered required.

## Draft Project Budget

Prior to a project being officially kicked off, a [**Budget**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Budget%20Tracking%20-%20Template%20v8.0.xlsx) for the project must be secured, in certain cases. The project requestor and/or Sponsor should have the detail on how the budget numbers were derived and when the funds are available for use.

Note:Not all projects will have a budget. Some projects only require the effort of assigned personnel and not capital.

For projects with a budget, the Project Manager(s) consider the following:

* Include both physical equipment, software costs, interdepartmental costs, additional resource costs (i.e.: consultants).
* Have an agreement with the project sponsor on the level of budget management required (what level of monitoring, change controls, etc.).
* PMO Budget template is available. It includes a 5-year projection to understand the cost of the system. It includes project implementation costs. But you should also consider the cost of ownership, anticipated software license increases and any returns on the investment which may be considered.
* Review the budget with the Requester/Sponsor and obtain approval.

## Define Steering Committee Members

The Project Manager(s) and Requester/Sponsor will identify the potential members for the Steering Committee. These are generally people within the University who can set the direction for the project and make project related decisions. The Sponsor and Project Manager(s) are automatically on the Steering Committee.

Steering Committee Responsibilities:

* Actively participate and set the direction of the project:
* Define the project’s Success Criteria
* Define the project’s High Level Achievements (HLAs)
* Identify project Constraints, Assumptions, and Risks
* Empower the Project Team to define the scope
* Define the Roles, Responsibilities of the PMs and Implementation team members
* Review project budget and monitor expenditures against budget
* Responsible for the overall success of the project
* Monitor the project’s progression:
* Approve / Deny Change Requests – scope, budget, timeframes
* Review and approve High Level Achievements artifacts
* Final decision maker on unresolved project issues
* Approve closing of project.

## Secure Steering Committee Members Participation

The Project Manager(s) and Sponsor will secure participation from the potential Steering Committee members. They will reach out to each potential Steering Committee member and explain the project’s objective, the role of the Steering Committee, and the time commitment necessary for the project.

At the initial Steering Committee meeting, the Steering Committee will meet to set the direction of the project usually in a 1 ½ to 2-hour meeting. Afterwards, the Steering Committee will either meet on a scheduled or “as needed” basis to monitor the project’s progress.

The Project Manager(s) will create & maintain a [**Project Contact List**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Contact%20List%20-%20Template%20v8.0.xlsx) which is an internal document that identifies the contact information about the Steering Committee, Implementation The contact list is part of the larger Communication Plan which is discussed later in the methodology. Project Team, other Rutgers participants, and 3rd party vendors, as identified. This Project Contact List should be updated as participants’ contact information changes and then distributed to the appropriate team members.

Steering Committee members may send a proxy for Steering Committee meetings for information transfer, but proxies are not encouraged to sign-off on any project artifacts, exceptions can be considered. If a proxy needs to sign-off on documents, they will need to become official Steering Committee members and be approved by the Sponsor.

## Initial Steering Committee Project Meeting

The Project Manager(s) schedule and facilitate the initial Steering Committee project meeting. The Project Manager(s) and Sponsor will develop and agree upon an agenda for the initial Steering Committee project meeting. The Project Manager(s) are responsible for scheduling all Steering Committee project meetings, creating the [**Agendas**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Agenda-Template%20v8.0.docx), and publishing the [**Meeting Minutes.**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Meeting-Minutes%20-%20Template%20v8.0.docx)

The initial Steering committee meeting agenda should address the following items:

* Introduction of Steering Committee members
* What is the project’s objective – taken from the PSR (if available)
* Role of Steering Committee Members – defined above
* High-level review of the Project Life Cycle and Methodology
* Project Budget (if available)
* Discuss the Communication Plan
* Develop Success Criteria
* Develop High Level Achievements
* Identify Constraints, Assumptions and known risks
* Identify/nominate member of the implementation team(s)
* Next Steps
* Date for next Steering Committee meeting

The above is a suggested agenda and should be modified to fit the needs of the audience. It might not be possible to complete all of the items listed above in one meeting. The Project Manager(s) should send out the agenda at least two to three days in advance.

The Project Manager(s) are responsible for having minutes taken for every project meeting. Meeting minutes should be distributed to participants and posted to a project document repository in a timely manner. The Project Manager(s) can delegate the responsibility of taking meeting minutes to team members, administrative support, etc. However, it is the Project Manager’s responsibility to make sure that the minutes are taken, reviewed by the team (for accuracy) and distributed for every project meeting.

## Define Success Criteria

The Steering Committee defines the overall Success Criteria for the project. During the Steering Committee project kick-off meeting, the Project Manager(s) will lead the Steering Committee members through the exercise of determining what the project’s end result will be.

Note: It would be productive if the Project Manager(s) prepare a draft list of the Success Criteria to initiate Steering Committee member participation.

The Success Criteria should be a statement that specifies exactly what the Steering Committee expects a project to produce and if possible with quantifiable terms.

Example: Decrease the time-frame for de-provisioning students by a minimum of 50% in each of the 8 areas: library, public safety (parking and ID card access), Logician clinical system, email, portal, e-learning, AD, and computer lab access. The current standard de-provisioning timeframe is two working days.

In the above example, if the Implementation Team can ‘decrease the time-frame for de-provisioning students in each of the 8 areas to one working day then the project would be considered successful. A measured achievement must be created as part of the Success Criteria; as you can see from the example above, the measured achievement is that the decrease in timeframe to de-provision a student must be a minimum of 50% less than the current timeframe, in this example two working days.

In order to provide evidence that this Criteria has been successfully completed, the Implementation Team will have to be able to define the current de-provisioning timeframes for each of the 8 areas. Then, once the project is completed, the new student de-provisioning process can be compared against the old to determine if the ‘minimum of 50%’ was successfully met.

## Define High Level Achievements (HLAs)

The Steering Committee breaks down the Success Criteria into five or six High Level Achievements (HLAs) that the Implementation Team must complete in order for the project to be successful. During the initial Steering Committee meeting, the Project Manager(s) will lead the Steering Committee members through the exercise to define the High Level Achievements (or artifacts) for the project. The HLAs are a series of broad achievements that when combined equal the total Success Criteria. Each achievement (HLA), on its own, is an entire work package that can be completed, either in a serial or parallel manner.

Example of HLAs:

Implement the IFEP middleware on a suitable platform with the necessary supporting software with an operational availability of 98%.

Successfully implement the web hosted Market solution with XYZ Vendor to 95% of All users.

Map 100% of the existing vendor catalogue items onto new platform by successfully entering this data into the new Markets database.

The above example of HLAs are separate quantifiable achievements that must be addressed in order to reach the Success Criteria. Each HLA must be a statement that specifies what will be achieved and with what measure.

After each HLA is completed, the Project Manager(s) must provide evidence to the Steering Committee that the HLA has been successfully completed. HLAs will be completed during the Executing Phase of the project.

## Define Constraints and Assumptions

The Steering Committee identifies any constraints and assumptions which will limit or control the activities of the Implementation Team as they work to complete the High Level Achievements and Success Criteria. The Project Manager(s) will lead the Steering Committee through a discussion to identify the project’s constraints and assumptions.

Examples of constraints:

The project budget of $350,000 cannot be exceeded

The project must be completed before current software contract ends on December 30th, 20XX.

Example of assumptions:

The hospital IT resources will be used to develop the project’s interfaces

The solution must be able to accept general ledger transactions from the Banner Financial system

The Project Manager(s) will have to make sure that the Implementation Team is working within the constraints and assumptions identified by the Steering Committee.

### Important Note on Time Constrained Projects:

A time constrained project is when there is an absolute hard completion date for a project. Few projects truly fit into this type of project. Project Manager(s) should work with the implementation team to analyse if the project has a true time constraint, is highly desirable or just a request. However, we must on occasion address true time constraints. In this case, the project manager(s) work through all the steps for developing Success Criteria and HLAs, develop a project schedule as defined in this methodology and determine if the current allocated resources are sufficient to meet the time constraint. If the project schedule indicates a date outside of the constrained time frame, a detailed analysis of the critical path will need to take place to suggest: alternate approaches, additional resources, additional costs or change in scope.

## Define Project Manager’s Authority

The Steering Committee will agree on what the Project Manager(s) overall responsibility is for the project. Generally, the Project Manager(s) is expected to have the following project responsibility:

* Schedule and lead Implementation Team meetings
* Prepare, distribute, and archive required project documentation
* Meeting Agenda & Minutes
* Project Document Artifacts
* Implementation Team and Steering Committee Status Updates
* Lead Implementation Team in developing and executing the Project Schedule
* Monitor & communicate status on project activities(tasks), issue and newly identified risks
* Initiate Project Change Control process, when required

## Identify Known Risks

The Steering Committee will help identify any known project risks that could impact the success of the project. Identifying risks will allow the Project Manager(s) and Implementation Team to appropriately plan for the risks as opposed to just reacting to them.

## Identify Impacted Departments and/or IT Systems

The Steering Committee will help identify any known departments and/or IT systems that could be impacted by the project.

Example:

Departments: OIT’s Enterprise Infrastructure group for acquisition of hardware.

IT Systems & Applications: ERP for interface of general ledger data.

Identifying departments and IT systems/applications that will be impacted by the project will allow the Implementation Team to appropriately plan for these areas.

## Review Project Change Control Process

The Steering Committee and the Implementation Team will need to become familiar with the Project Change Control Process. Having a proper change control process in place is key to having a successful project.

**Project Change Control** – This is when the Project Manager(s) has to formally request a change in the project’s baseline schedule, finalized budget, defined Success Criteria, or defined High Level Achievements (scope).

Once the project scope has been defined (Success Criteria & HLAs), the Project Manager(s) define tolerance levels which the committee feels are acceptable to Scope, Time and Budget. This is documented in the project [**Communication Plan**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Communications%20Plan%20-%20Template%20v8.0.docx). Project Manager(s) will enter into the Change Control Process should the change exceed the set tolerances.

If a change is required, then these steps should be followed:

1. Complete [**Change Request Form**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Change%20Request%20-%20Template%20v8.0.docx) – Completion of a change request form describing the change that is being requested, the justification for the change, the cost of that change in terms of dollars, duration and the impact of the change on scope.
2. Evaluation of the Change Request by the project team
3. The Project Manager(s) should always be required to explore the opportunities to address the issue with corrective action versus changing the project baselines.
4. The Project Manager(s) prepares a recommendation to the Steering Committee regarding the change request.
5. If the change request is approved by the Steering Committee, the Project Manager(s) updates the project documentation.
6. A copy of the change request and action must be retained in the project record and filed in the project archives as part of the project close-out process.
7. The Project Manager(s) should communicate the changes to the appropriate stakeholders.

## Develop A Communication Plan

The Project Manager(s) develops a [**Communications Plan**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Communications%20Plan%20-%20Template%20v8.0.docx) that details the communication needs of the project stakeholders.

In order to develop this document, the Project Manager(s) interviews the project teams, sponsor, and other participants to determine their communication needs, the type of information they want to receive as well as the medium they would prefer, ex. email. The Communication Plan specifies the project engagement sessions they require, and, which documents, such as change requests, status reports, technical documentation, and updates that are distributed to which recipients. It is essential that we know not only the type of information each recipient would like, but also the level of detail at which the information is desired.

To keep the communication plan manageable, it is suggested that the type and frequency of communication be organized by role (for example, all Steering Committee members will receive the same status report at the same time each month).

Another key function of the communication plan is to determine tolerance levels for changes to scope, time and budget. Projects are so dynamic and can last for a significant length of time that Steering Committee members may not want to be notified every time minor changes occur. Therefore, it is recommended that within the Initiation Phase, the Project Manager(s) set communication expectations with the Steering Committee. In this case, the communication plan becomes tied to the Change Management Process.

The Communication Plan should also consider other stakeholder communications in order to disseminate relevant project communication to the end user community. This should include info about release dates (or go live dates), training, support services, town halls, status updates, project website development, etc.

## Create Project Charter

The [**Project Charter**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Project%20Charter%20-%20Template%20v8.0.docx) is the document that formally authorizes the project to begin and sets the goals of the project. This is the major artifact for the Initiation Phase of the project. The Project Charter is created and approved by the Steering Committee and sets the direction and parameters for the Implementation Team to follow. It details the business objective(s) that the project will address, Success Criteria, as well as high level achievements (HLAs), constraints, assumptions, affected stakeholders, known risks, and areas impacted by the project. Because the Project Charter is developed so early in the project, it provides a broad, high level view, describing the end results, but not all the detailed processes or tasks that will be used to achieve those results. These detailed processes or tasks will be developed during the Planning phase.

Note: It is recommended that the Project Manager(s) should actively participate and help guide the Steering Committee during the Project Charter creation process.

Project Charter key elements:

* Business Objective
* Project Manager’s Authority
* Success Criteria Statement(s)
* High Level Achievements (HLAs)
* Constraints
* Assumptions
* Stakeholder Identification
* Risks
* Known Impacts on Areas/Systems
* Roles and Responsibilities

The Steering Committee members approve the final version of the Project Charter. Note if a Guiding Principles document exists for a project, it should be referred to in the Project Charter.

## Project Artifact Checklist

The Project Manager(s) should use the [**Project Artifact Checklist**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Artifact%20Checklist%20-%20Template%20v8.1.xlsx) to define the required artifact documents for each phase. This checklist is a guide for the team. Some of these documents listed are mandatory for every project; while others are selected based on the complexity, size, data classification or special requirements of each project. Please note that this document is started in the Initiation Phase, but is likely to be finalized in the Planning Phase upon consultation with the implementation team. The purpose of this document is to keep all the project team members (SC & implementation team) in synch with regard to documentation expectations. Sometimes the expectations of the SC members are not the same as the implementation team. Because project documentation may require considerable time to draft and finalize, this checklist is critical in managing team member expectations and time commitments.

# PLANNING, DESIGN AND DEVELOPMENT PHASE

During the Planning, Design & Development Phase, the Implementation Team develops their understanding of the deliverables needed to produce the project’s defined Success Criteria. They break down the High Level Achievements into component deliverables and consider the various ways to reach the end result. Important artifacts are created such as a detailed project schedule, requirements analysis, security plan, risk management plan and test plan. All of these artifacts are compiled into the overall project plan and schedule (since they take up resource time to develop and approve). The project artifact check list should also be finalized in the early stages of this phase.



Figure 3 - Planning/Development Phase

## Define Implementation Team Members

The Steering Committee identifies personnel to be assigned to the Implementation Team(s). The Implementation Team’s primary responsibility is to execute the project. Large scale, complex projects may require multiple implementation teams which are focused on specific sub project activities.

Implementation Team consists of internal staff, vendors, and contractors.

A listing of the Implementation Team’s responsibilities is displayed below.

Implementation Team Responsibilities:

* Develop the detailed tasks to accomplish each HLA
* Agree to timeframes, resource commitment and dependencies for each task
* Develop and agree on overall project’s schedule
* Provide status for each assigned task on a recurring basis
* Complete assigned tasks by planned deadlines
* Communicate concerns/issues to Project Manager
* Attend project meetings
* Identify and manage project risks
* Inspect and agree that each HLA is completed
* Participate in the development of project & SDLC documentation
* Provide transition to support staff
* Participate in the development & completion of project closure report
* Participate in the transition from project tasks to operational tasks
* Close-out the Project.

Note: It is extremely important that the Steering Committee knows that they are **AUTHORIZING** the Implementation Team to make all necessary decisions in order to complete each HLA. The Implementation Team does NOT have to get prior approval from the Steering Committee on any decisions regarding these activities, except as noted in the following paragraph.

The Implementation Team cannot change a HLA, modify scope, increase the budget, or change any timeframes for tasks on the project’s critical path without Steering Committee approval (see change management process - section). If the Implementation Team cannot agree upon a major issue resolution or key activity decision, then the Project Manager(s) will present these to the Steering Committee for their guidance and, if necessary, final ruling.

### Implementation Team Kick-off Meeting

The Project Manager(s) schedules and hosts the Implementation Team project’s kick-off meeting. The Project Manager(s) will develop the agenda and distribute it to team members prior to the kick-off meeting. Also, the Project Manager(s) are responsible for scheduling all project meetings, creating the agendas, and accurately capturing the meeting minutes.

### Implementat**i**on Team Agenda

The Project Manager(s) will need to review all Initiating Phase documents so that the Implementation Team knows the Steering Committee’s approved direction of the project.

The project Implementation Team kick-off meeting agenda should address the following items:

* Introduction of Implementation Team Members
* Familiarization with the PMO PM Methodology
* Roles & Responsibilities of Implementation Team Members
* Review Success Criteria and HLAs
* Review Constraints and Assumptions
* Review Planning Phase steps
* Finalize Project Artifact Check list (documentation that the team agrees to produce as part of this project)
* Start HLA task break down Project Team meeting schedule
* Discuss Next Steps

The above is a suggested agenda and should be modified to fit the needs of the audience. The Project Manager(s) should send out the agenda in advance of all Implementation team meetings.

## Requirements Analysis

The [**Requirements Analysis**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Requirements%20Analysis%20-%20Template%20v8.0.docx) is a detailed narrative breakdown of all the critical conditions that must be met for the project to be successful. Requirements should be actionable, measurable, testable, and related to a business need. The Requirements Analysis should also define the business needs, compliance needs, design criteria, and security needs. This comprehensive document is considered optional for all projects unless Sponsor, SC or OIT management specifically requests it. If the project has undergone an RFP process, the requirements analysis document is highly recommended. Often requirements change, added, can be enhanced or can be better detailed during this process.

Using the concept of a [**Traceability Matrix**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Requirement%20Traceability%20Matrix%20-%20Template%20v8.0.xlsx), the requirements should be the catalyst for the development of detailed Test scripts (or use cases). The traceability matrix is a summarized list of the requirements from the narrative document mentioned above (if produced). For small projects the Traceability Matrix maybe completed in lieu of the full Analysis document. This ensures that no requirement is missed during the testing process. Requirements should be both system based (i.e.: system availability or back up requirements) or end user based (functionality of user interface).

In any project, the Project Manager(s) will work with the Sponsor, Steering Committee and the Implementation Team to make sure that all requirements and needs are documented and defined.

## **Business Process Model**

A [**Business Process Model**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Business%20Process%20Model%20-%20Template%20v8.0.docx) is a document that outlines business processes and the ways in which operations are carried out to accomplish the intended objectives of an organization. This is the activity of representing enterprise processes, so that the current ("as is") process may be analysed and improved ("to be"). The three areas of focus are management processes, operational processes, and supporting processes.

A Business Process Model is created to help with the requirements analysis and design of the proposed system. The three main purposes of a Business Process Model are to:

Capture current business processes providing insight into how work is executed, who is involved, and how activities flow from beginning to end.

Redesign and Improve business processes to reduce inefficiencies, drive down costs, and respond faster to customer requests. A process has to be documented before it can be redesigned.

Automate existing process. The relationships of a business process in the context of the rest of the enterprise systems (e.g., data architecture, organizational structure, strategies, etc.) create greater capabilities when analysing and planning enterprise changes.

The Project Manager(s) will work with the functional business members of the Implementation Team who understand how the process for the work being reviewed is completed. This sub-team should capture resources, inputs, processes and outputs, etc. It is the responsibility of the functional business owners to ensure accuracy and completeness of this document.

If the business processes affected by this project are extensive/complex or if they are anticipated to change as part of the project, then this artifact is considered required.

Note: There are several IT systems (such as Navvia) which are automated tools for creating and managing business processes. If available, those systems may be used in lieu of the template.

## **Develop Project Schedule**

After the Implementation Team understands the High Level Achievements (HLAs), the next step is for the team to develop a detailed project schedule to complete the HLAs. The Implementation Team needs to discuss what tasks are necessary in order for the team to complete the HLAs. Who will perform the tasks, what is the resources’ effort to complete the tasks, what are the task dependencies, and what is the availability of the resources (% time available to the project).

Depending on the complexity of the project, this planning effort can take a substantial amount of time and effort (weeks, sometimes months) on the part of the Implementation Team. Either MS Excel or MS Project can be used as a tool to develop a detailed project schedule. It is highly recommended that MS Project be used for all medium or large sized projects and PDF formatted copies distributed to Implementation Team members and others who do not have MS Project installed or the correct version. MS. Project offers added capabilities such as critical path analysis and resource levelling. Free online tools are available to view MS Project file types.



Figure 4 - Develop Project Schedule

### Define Detailed Project Tasks

The Project Manager(s) leads the Implementation Team through an exercise to identify the detailed tasks for the defined HLAs. Each large scale activity or sub-HLA will be further broken down into specific sub-tasks.

For example:

Major project activity or sub-HLA: #3 - Define and document existing procedures and steps for de-provisioning students in each of the 8 schools.

Example of detailed tasks for the above sub-HLA:

Create template and format for documenting procedures

Document Public Safety student de-provisioning procedures

Document Library student de-provisioning procedures

In most circumstances, the Project Manager(s) will need to come up with suggestions to get the conversation started. The Project Manager(s) should actively solicit input from all the Implementation Team members.

Note**:** Be sure to include vendor specific tasks, when applicable.

### **Assign Resources to each Task**

As each task is identified, the Project Manager(s) will work with the Implementation Team to determine who will be responsible for completing the task. Single or multiple resources can be assigned to each task. The assigned resource(s) for a task are usually individuals who are on the Implementation Team.

However, in some situations, assigned resource(s) for a task may be individuals that are not on the Implementation Team. In this scenario, an assigned implementation team member will be held accountable for the task and will have to coordinate the effort of the non-Implementation Team resource(s).

### **Assign Resource Effort**

Next, the Project Manager(s) ask the assigned resource(s) of the task how much effort (duration) in hours will be required to complete the task.

For example, the task states ‘document the current procedure to de-provision a student in the Library’ and the task is assigned to Joe to complete. Joe estimates that it will take him 20 hours to complete this task. When estimating the effort, the resource(s) should base their answer on a ‘perfect world’ where they have nothing else to do besides complete this task. In Section 4.4.5 “**Obtain Implementation Team Resource Availability**” below it discusses how to address team member concerns regarding their availability to work on their assigned project tasks in addition to their normal work duties.

Note**:** The Project Manager(s) and Steering Committee should realize that the resource efforts stated in the Project Schedule are a best estimate. Team members are encouraged to use benchmarking when providing estimates (actual durations on similar tasks).

### **Identify Task Dependencies**

The Project Manager(s) will ask the Implementation Team what task(s) must be completed before another task can start. Also, does a task need additional lag time to start after a preceding task is completed or can task(s) run parallel (at the same time)? What the Project Manager(s) is trying to do is determine the dependencies of a task.

For example, a task states ‘approve library de-provisioning procedure’. The team members identify that this task cannot start until the previous task of ‘document the current procedure to de-provision a student in the Library’ is completed.

The Project Manager(s) should be knowledgeable of the different types of project task dependencies (e.g., FS – finish to start) and be able to lead the team successfully through this exercise. (Review [Definitions Section](#_Definitions_1) for an explanation of different project task types).

There are occasions where there is an external dependency with another project or business decision outside the scope of the project. The Project Manager(s) must assess to the best of their ability how this external dependency will impact their project tasks or schedule.

### **Obtain Implementation Team Resource Availability**

After all tasks for each sub-HLA have been identified and assigned along with the appropriate resources effort hours, the Project Manager(s) will ask the Implementation Team what their availability is for the entire length of the project. The Implementation Team member will need to identify the average percentage of their time that they can allocate to the entire project, i.e., 10%, 50%, etc. Or they can state that they are only available 5 hours each week to work on the project which translates to 13.0 % (5 hrs./37.5 standard work week) availability. Often, a team member will need to review with their supervisor what time they can allocate to the project before providing this information to the Project Manager(s).

The percentage of time the resource is available to work on the project is used by the Project Manager(s) to help create the project schedule. For example, if ‘x’ project task assigned to Mary will take 8 hours to complete and Mary is allocated 10% for the entire project, then it will take Mary 2 weeks to complete the task instead of one day (40-hour work week x 10% = 4 hours each week).

### **Refine Project Schedule**

After listing all the known tasks, dates, the order in which those tasks should be completed, team member task assignments, availability of the team members for each project task, and identifying constraints and assumptions, the project schedule is refined by the Project Manager(s) using additional factors, such as dependencies on other projects, vacations, holidays, etc.

### **Project Schedule Approval**

The project schedule should be approved by both the Implementation Team members and Steering Committee members before the Implementation Team can start work on any tasks.

#### **Implementation Team Review and Approval**

The Project Manager(s) review the project schedule(s) with the Implementation Team in order to obtain their overall approval on the tasks, dates, resources, effort, and dependencies.

If the Project Manager(s) provides several different project schedules (scenarios) to the Implementation Team, a final project schedule must be produced and approved by the Implementation Team before the schedule can be reviewed with the Steering Committee.

The Project Manager(s) should document all implementation team approvals.

#### **Steering Committee Review and Approval**

The Project Manager(s) review the recommended project schedule with the Steering Committee in order to obtain their approval.

During this meeting, the following situations could occur:

* New constraints and/or assumptions are discussed
* HLAs are changed or removed
* More resources are made available

A verbal approval by Steering Committee members is sufficient, but the approvals must be noted in the Steering Committee meeting notes. Email approvals from absent Steering Committee members are also acceptable.

### **Baseline Project Schedule**

Once Steering Committee approval is received, the Project Manager(s) baselines the project schedule. Once the schedule baseline is set, all project task dates are then measured against this benchmark. Remember, proper change control approvals should take place once it is determined that the task or project completion date falls outside the set tolerance levels, see section 3.16 Review Project Change Control Process for more details.

The Project Manager(s) should contact the OIT PMO if they don’t know how to set the project baseline in Microsoft Project software.

Note: Even after the Steering Committee has approved a project schedule change, it is recommended the Project Manager(s) not re-baseline the project schedule; only change the actual working schedule. A project schedule should be baselined only once as this is used as a benchmark to measure the planned vs. the actual schedule variance. The Project Manager(s) should be able to identify and document the root cause issue(s) that resulted in each schedule delay as well as the appropriate Steering Committee change control approval.

## **Architecture Design Document**

The [**Architecture Design Document**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Architecture%20Design%20-%20Template%20v8.0.docx) outlines the project architecture, installation and configuration procedures with the following goals:

* Provide a general description of the system
* Describe the logical architecture of the application/software
* Describe the physical architecture of the environment(s) on which the software runs (even if in the cloud)
* Provide proof of alignment between the architecture and the system requirements.

If a new infrastructure and /or application design is required and this project is of medium or large size, this artifact is considered required.

## **Security Plan**

A [**Security Plan**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Security%20Plan%20-%20Template%20v8.1.docx) should be developed to outline security requirements for a system or application based upon the teams understanding of data classification, the size & complexity of the system as well as the business risk tolerance (which should be understood from the business process analysis.

The Project Manager(s) should work with the Implementation Team to make sure all security aspects have been considered. The team may consult with OIT Information Protection and Security Services for assistance or advise.

The type of data a system may store, display or transmit is important to understand for determining the correct project controls to apply. OIT Information Protection and Security Services (IPS), has identified the following data classifications:

* Restricted – Protection of the data is required by law
* Internal – Contractual obligation to protect the data
* Public – Protection of the data is at the discretion of the data owner

If the type of data for a project is considered Restricted, then a Security Plan is considered required. If the type of data is Internal and the project is of Medium or Large that the Security Plan is considered required.

Note: For more information please visit: <https://rusecure.rutgers.edu/data-classification>

Please also refer to IT related Policies and Standards at: https://rusecure.rutgers.edu/policies-standards-guidance-and-compliance

Special Note about RBHS related projects – There are additional standards for system security for RBHS projects. You are encouraged to learn more at: <https://rusecure.rutgers.edu/information-security-rbhs>

## **Data Management Plan**

A [**Data Management Plan**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Data%20Management%20Plan%20-%20Template%20v8.0.docx) should determine the type of data that will be used and/or stored within the system and ascertain how the data will be created, maintained, accessed, secured and archived. If there is existing data that requires migration or conversion, the Data Management Plan should address these requirements, as well. This artifact is scalable to fit the needs of a project. This document should be developed in consultation with data owner(s), who may not necessarily be part of the day to day implementation team.

This document should also be used to define interim (or sample) data which may be needed for development or testing purposes. Test data planning should not be considered at the start of testing, it may take considerable effort to develop test data, therefore you are encouraged to carefully plan for this need as soon as possible.

If the production system has new data integration, data mining or database design components, this document is considered required.

## **Disaster Recovery Plan**

The [**Disaster Recovery Plan**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Disaster%20Recovery%20Plan%20-%20Template%20v8.0.docx) outlines and documents the formalized processes to handle the recovery of applications, data, and infrastructure systems directly related to the project. This document should consider availability needs for each portion of the system. The purpose for this plan is to create a plan for disaster recovery, but it is not intended to be a business continuity plan. Business Continuity plans are generated at the functional level under the guidance of senior business leaders.

The Project Manager(s) is responsible to lead the implementation team in ensuring that the Disaster Recovery Plan has been created by developing a new process or set of processes; or by leveraging current processes (meaning incorporating the new system into the enterprise OIT disaster recovery plan already in place).

If the system is critical to daily business functions, this plan is considered required.

## **Development Plan**

The purpose of creating the [**Development Plan**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Development%20Plan%20-%20Template%20v8.0.docx) is to define the activities and process to be used for system and/or software development. It describes the methods to be used, the approach to be followed for each activity and who is involved in the development.

Will this project use a prototype development model? What stages of the prototypes will be presented to the business? What code language will be used and why? Will there be a dedicated development environment built for coding? What supportive tools will be used by the developers (i.e.: GIT).

This plan should be developed early on in the planning process. If coding or configurations are needed and if the project is of Medium or Large size, then this plan is considered required.

## **Create Budget, Procurement, and Vendor Management Plan**

The [**Budget, Procurement, and Vendor Management Plan**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Budget%20Procurement%20Vendor%20Management%20Plan%20-%20Template%20%20v8.0.docx) specifies the controls that are agreed upon by the Project Manager(s) to address the funding and cost monitoring of the budget, the procurement and invoicing of vendor goods and services, and how the vendor will be managed.

The management plan is meant to be changed to fit the needs of each specific project. Please review the example provided and modify it to accommodate your project’s specific needs.

The following items could be addressed within the plan:

* Budget
* Financial Codes (Cornerstone info)
* Who is the fiscal officer/manager (meaning, who named resource who manages the budget account for which the project is being funded)
* What are the funding amounts per fiscal year
* Who will monitor costs – actual vs. budget
* When does the SC need to approve financial changes
* Procurement
* Who approves purchase orders
* Who approves invoices
* Vendor Management
* Who is the main contact person with the vendor(s)
* Who maintains the vendor contact information
* Who are the vendors
* How are vendor quotes are handled
* Who tracks vendor /contractor hours spent on the project
* Budget Closure

Once the Budget, Procurement, and Vendor Management Plan is created, the Project Manager(s) can assist the Project Sponsor or Requestor in creating a multi-year project budget. If the project will be using vendor or purchasing assets and is of Medium or Large size this plan is considered required.

If it is the responsibility of the Project Manager(s) to track budget expenditures, then the PMO [**Budget Tracking Template**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Budget%20Tracking%20-%20Template%20v8.0.xlsx) should be completed with the necessary budget data and kept up-to-date as costs are incurred. If the project has a budget and the Project Manager(s) are responsible for tracking the budget, then this tracking sheet is considered required for all projects of Medium and Large sizes. As expenses occur (invoice received), the Project Manager(s) will apply project expenses against the budget items that were previously setup.

## **Test Plan**

The [**Test Plan**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Test%20Plan%20-%20Template%20v8.0.docx) will specify the testing strategy and goals for the entire project. All systems need to be tested and therefore should have a plan. In fact, system testing is a major part of the overall system development process that involves many people and countless hours of detailed work. Unfortunately, most testing efforts are under-planned. Some software testing professionals work in the field for years without ever seeing a really comprehensive QA plan and test suite. Part of the problem is that QA efforts often begin too late in the release cycle when there is too much pressure to take shortcuts. Additionally, they may concentrate on only a subset of the system, such as the software itself, and not consider the hardware or network.

Include the strategy (who, what, when) for all levels of testing required for the project, some types of testing which may be included are:

* Unit Testing
* System Testing
* Integration Testing
* Installation Verification
* User Acceptance Testing

Be sure to include in your test plan, the data which will be needed for carrying out the necessary testing. This is an often overlooked step but can be complex, especially if the team has to develop the test data from scratch. If using existing data, be sure to obtain necessary approvals from Data Custodians or owners.

Do not include in the test plan, all the detailed test cases in the test plan. For documenting test cases/use cases or scenarios use the [**Test Case Template**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Test%20Use%20Cases%20-%20Template%20v8.0.xlsx)**.**  The content of the Test Case/Use Case spreadsheet is an extension of the Requirements Analysis document mentioned in section 4.2. Using the concept of the traceability matrix stay consist with the numbering system. This ensures alignment with the requirements and completeness of your test cases.

The implementation team, led by the Project Manager(s) are responsible for producing a final Test Plan document. The final Test Case/Use Case list is not always completed in the Planning and Development phase, but it MUST be completed and agreed upon prior to the start of actual testing. Once testing starts, test results must be documented and will require a different set of approvals by the testing organizations involved.

Note: For application testing, especially new applications, Project Manager(s) should plan for multiple test cycles as defects will have to be remediated and re-tested.

Note: Training for testers should also be identified in the Test Plan as a prerequisite.

## **Develop Risk Management Plan**

The risk management process is a systematic and proactive approach to identifying risks and minimizing their uncertainties. The Project Manager(s) should prepare a [**Risk Management Plan**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Risk%20Management%20Plan%20-%20Template%20v8.0.docx)which includes identifying risks, determining their possible impact, identifying who should be involved in their mitigation, and how the risks will be managed. The Project Manager(s) should seek advice from the Steering Committee and Implementation Team members in creating the plan.

**What is a project risk?**

A risk is an anticipated event/occurrence which may impact the project; the event/occurrence can either be internal or external. The key word is **MAY**. A risk is not a certainty. If a risk occurs, it becomes an issue.

Following the concept of the project triple constraints, risks can impact:

* Budget/costs
* Schedule/time
* Quality/scope

The risk management plan describes the process to:

* Identify the risk events
* Evaluate the risks with respect to probability and impact
* Assess options and develop a mitigation plan
* Track risk mitigations and conduct periodic reviews

Risks should be quantifiable and ranked depending on their level of impact to the project. For example, a risk that has a low probability of occurrence and a low impact to the project will be ranked lower than a risk which is likely to occur and would have a huge impact on the project. This ranking can help the Project Manager(s) and Implementation Team utilize the available project resources in the most effective way.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Severity of Impact** | | | | |
| **Probability** |  | **Low** | **Medium** | **High** |
| **Low** | Low | Low | Medium |
| **Medium** | Low | Medium | High |
| **High** | Medium | High | High |

Figure 5 - Project Risk

The Project Manager(s) adds risks to the [**Risk Management Log**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Risk%20Log%20-%20Template%20v8.0.xlsx) as they are identified. Risks can be identified as early as the Initiating Phase and can continue throughout the project until completion.

The Project Risk Log which needs to be stored in the appropriate project document repository and updated as needed. Project Manager(s) is responsible for reviewing the risks periodically with the Implementation Team and identifying remediation steps to eliminate or reduce the risks throughout the project’s lifecycle. All projects should have a risk log regardless of size or complexity.

## **Post-Implementation Plan**

The [**Post Implementation Plan**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Post%20Implementation%20Plan%20-%20Template%20v8.0.docx) is the document that facilitates the handoff of the project from the implementation team to the operational staff. It outlines how the system will be maintained, upgraded and supported after the project lifecycle. The plan will address support needs, help desk support implementation, needed policies or procedures along with end of life (or refresh) recommendations. The system and/or application should be outlined in detail. This plan should include required maintenance, maintenance schedules, log reviews and a documented process for system account access reviews. Also, a detailed change management process needs to be developed for future change, maintenance, upgrades and customizations.

This document also outlines recommendations from the implementation team on future enhancements and optimization efforts. Often times, due to various resource constraints, additional scope items are put off. This is the document where the implementation team would recommend such opportunities for future phases.

If the project is of Medium or Large size and is a new system or will be managed by a new support group, then this plan is considered required.

## **Training Plan**

The [**Training Plan**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Training%20Plan%20-%20Template%20v8.0.docx) defines the activities and approach for training the users on the product of the project. This plan will need to describe the time lines, resources and process of scheduling user training. The Training Plan will also need to outline how users will be selected for the training classes along with training schedules and curriculum. The outline for the training materials should be included. Identify any dependcies for end user access to production systems. The Training Plan should address a competency testing outline or matrix, especially for clinical applications.

The Project Manager(s) and the Implementation Team are responsible for ensuring that a thorough Training Plan has been created, while working with the appropriate training staff. Types of training to be considered:

* Technical/System Training
* Tester Training (Note: this training needs to be tied into Test Plan)
* Admin User Training
* Super User Training
* End User Training and any prerequisit training which maybe needed

Consideration should be given to soliciting feedback from those attending the various training sessions as to the quality of the trainng and applicability to the user’s work environments as well as meeting applicable clinical or regulatory guidelines. This feedback can be used to improve future training programs and identify areas for re-training of current users. In the case of required competency training, attendence and satisfactory completion must be recorded and retained by the responsible administrative entities. If training of application/system adiminstrators or end sers will be part of the scope of the proejct and the system is of Medium or Large size, then this plan is considered required.

# EXECUTING / CONTROLLING PHASE

During the Executing and Controlling Phase, the Implementation Team members work on completing the tasks defined on the project schedule. The Project Manager(s) will monitor the project’s progress and adjust performance as needed to meet artifact(s) deadlines. As HLAs are completed, the Implementation Team should review and approval them.



Figure 6 - Executing / Controlling Phase

## **Project Schedule**

The Project Manager(s) will manage the project schedule by reviewing the resources’ progress for each assigned task. Based on the ongoing status provided by the Implementation Team members, the Project Manager(s) will address issues and problems, update task effort, and review that tasks are being completed within designated start and completion dates.

## **Execution of Test Plan**

The Project Manager(s) will work with the Implementation Team to identify testers to execute the Test Plan that was developed during the planning phase, making sure that all levels of testing have been performed and appropriately recorded and approved. All issues and/or concerns will need to be documented and worked through until testing is successful. The [**Test Case**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Test%20Use%20Cases%20-%20Template%20v8.0.xlsx)results must be accepted by all designated approvers.

## **Status Updates**

Implementation Team members will provide regular status updates on their scheduled project tasks as agreed upon with the Project Manager(s).

The status update will reflect the work performed for each task from the previous update. If no work was performed by the Implementation Team member for an open task, a status on the task is still required stating that no work effort occurred.

The Project Manager(s) will update the project schedule based on the individual updates provided by the Implementation Team members. Any issues and/or concerns identified will need to be addressed by the Project Manager(s). This may result in corrective action or change to the project schedule.

The Project Manager(s) will provide regularly scheduled project [**Status Reports**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Project%20Status%20Report%20-%20Template%20v8.0.docx) that will be distributed to the team members and appropriate stakeholders as outlined in the Communication Plan.

The Project Manager(s) will produce regularly scheduled Status Report for the Steering Committee and distribute as outlined in the Communication Plan.

## **Project Change Control Process**

The Project Manager(s) will enact the project Change Control Process when necessary (see Project Change Control Process in the Planning Phase) by submitting a [**Change Request Form**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Change%20Request%20-%20Template%20v8.0.docx) to the Steering Committee. If a project is of Medium or Large size, then usage of the change request form is considered required. Otherwise, a less formal method of documenting change acceptance maybe used (i.e.: meeting minutes).

## **Issues Reporting Log**

Issues can pop up at any time during a project and should be reviewed and addressed by the Implementation Team. Typically, project issues can be related to changes in the project schedule, resources, materials, finances, or unexpected changes in the project environment. Every project should track, resolve and manage issues. An [**Issue Log**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Issues%20Reporting%20Log%20-%20Template%20v8.0.xlsx) is highly recommended for all projects but is considered required for Medium or Large size projects

Below is a guide to the types of information you should capture in a typical issue log:

|  |  |
| --- | --- |
| Id: | A unique number to track the issue. |
| Issue Date: | Date the issue was raised |
| Type: | Used to categorize issues for easier assignment and tracking. Issue types may vary, but should usually include the following:   * Technical: an issue relating to the technical aspects of the project process or deliverable. * Financial: An issue relating to project funding, spending or budget. * Resource: An issue relating to project resources. * Schedule: An issue relating to the project schedule (timeline).   Other: A unique issue specific to the project at hand. |
| Problem Description: | Identify the specific nature and impact of the issue (what is the issue about and how does it impact the project in terms of deliverables, schedule, costs, scope or other parameter?).   * Originator: Who first raised the issue? * Assigned To: Who is responsible for issue resolution? |
| Issue Priority: | To ensure that issues are dealt with appropriately considering impact and consequences:   * High: Issues having a major impact on the project, requiring immediate action. * Medium: Issues have a moderate impact on the project, requiring attention in the near future. * Low: Issues having an insignificant impact on the project, requiring attention at some future date if time permits, or not at all. |
| Identified by: | Person who has identified the issue |
| Assigned to: | Person who is responsible for resolving the issue (issue analysis, resolution tasks, reporting on status, closing the issue). |
| Start Date: | To establish a timeframe for problem initiation. |
| Target Completion Date: | To establish a timeframe for resolution. |
| Resolution Description: | To identify the steps taken to address and resolve the issue. |
| Status: | Classification to track issue status:   * Identified: The issue has been identified, resolution has not yet begun. * Seeking Resolution: Determining how to resolve the issue. * Solution Proposed: A solution to the issue has been proposed and is pending acceptance or revision. * Resolved: The issue has been resolved. * Escalated: The issue has been escalated to the Steering Committee for further action. |
| Close Date: | To establish a timeframe for problem closure. |

Once an issue is raised and documented, resource assignments must be made. Depending on the nature of the issue, any Implementation Team member may be involved.

A key challenge is tracking issue status from the point at which issues are first raised and assigned, through to resolution. Depending upon the complexity and visibility of any given project, you may need to review all open project issues at each Implementation Team meeting. Review of the open issues during these team meetings can provide an opportunity for the entire team to consider issues resolution progress, plan or adjust corrective actions, and re-allocate resources when required to close critical issues.

## **Production Cutover Plan**

The [**Production Cutover Plan**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Production%20Cutover%20Plan%20-%20Template%20v8.0.docx) is the only plan which is finalized in the execution phase of the project. However, the planning may actually begin at the design step and so, maybe started in planning. It is often that the team will not pick a specific “go live” date until the bulk of functional testing is complete, therefore the plan resides in the execution phase of the project lifecycle.

The cutover plan is a specific and detailed plan that documents the steps that will be followed to deploy a system or application from the testing and/or development environment into the production environment. This document will include the criteria for installation, deployment approach (including any automated tools that maybe leveraged), contingencies, communications, and production (system & functional) verification. Testing is required and test results should be documented in conjunction with the expected outcome. The plan should include the roles and responsibilities of those involved. For applications or systems which are third party hosted, the Implementation Team should coordinate with the vendor(s) during development of this document.

If the project is of Large size and high impact to end users, then this plan is considered required. If the project is of Medium size and high impact to end users, then this plan is highly recommended.

## **Conduct Training**

The Training Plan that was developed during the Planning/Design/ Development Phase needs to be refined, if necessary, and then administered. This process will need to be monitored and evaluated closely by the Project Manager(s) working with the training staff assigned to the project. It is highly encouraged that training attendees be asked to provide feedback on the training curriculum, quality of training, and applicability to their operational needs so that, in the case of shortfalls, re-training can be scheduled as soon as possible and future training plans can be improved.

Consideration should be given to post-implementation training, either as refresher training or for users that were unable to attend the scheduled user training.

# CLOSING PHASE

The closing phase begins when all the project’s high level achievements are completed. The Project Manager(s) will complete the processes for closing the project budget and complete a closure report. The closure report will include final comments and lessons learned on the project.



Figure 7 - Closing Phase

## **Project Closure**

The Project Manager(s) and the Sponsor will follow the required steps to close the project budget:

* Close out vendor invoices
* Update salary information (if applicable)
* Confirm that PO’s have been closed
* Meet with Sponsor, Financial Officer to confirm budget closure

The Project Manager(s) will consider scope to be complete when:

* They verify that any major implementation or post-implementation issues have been resolved.
* All project artifacts (documentation) are up to date, finalized/approved and resides in the appropriate project document repository for review or audit.

The project Manager(s) will consider the schedule complete when:

All project tasks are marked complete and any follow ups (immediate post implementation tasks) are assigned to named resources.

The project is considered complete and closed when the [**Project Closure Report**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Project%20Closure%20Report%20-%20Template%20v8.0.docx) is submitted it to the Steering Committee and approved. The Project Manager(s) should communicate the project closure to all project stakeholders as appropriate (i.e.: email announcement or updated project webpage. The closure report is scalable for the size and complexity of the project and is considered required for all project types.

# Appendix A – Key Terms and Definitions

| TERM | DEFINITION |
| --- | --- |
| Artifact | A term used to describe official project documents. |
| Business Issue | The business reason why the requestor wants to have the project completed. |
| Co-Project Manager | The Co-Project Manager is the personnel assigned to the project from the department who has a major stake in the success of the project. The Co-Project manager is to assist the Project Manager in the execution of the methodology having the same accountability.  The Co-Project Manager will also have responsibility to aid the Implementation Team in performing tasks to complete the project tasks, deliverable and artifacts. The Co-Project Manager will work hand-and-hand with the Project Manager. While the PM will lead and direct the team through the PMO methodology, change and risk management processes; the Co-PM will lead and direct the project through specific subject matter. |
| Corrective Action | Corrective Action is steps the project manager(s) should take in order to bring the project back to agreed upon baselines to scope, time or budget. |
| Critical Path | A critical path is the sequence of project task activities which add up to the longest overall project duration. This determines the shortest time possible to complete the project. Any delay of an activity on the critical path directly impacts the planned project completion date (i.e. there is no float on the critical path). |
| Deliverables/Artifacts | The required result or output for completing a step in the project methodology. |
| Implementation Team | The group of individuals who are responsible to implement the project tasks. |
| OIT (or IT) Leadership/Leader | The group of individuals designated as IT leads for their respective area, school or department |
| Project Management Methodology | Processes that provide a common set of guidelines and tools for all OIT employees to successfully manage a project. |
| Project Management Office (PMO) | The OIT department who sets the direction, monitors, and provides training on how OIT personnel should successfully run projects. |
| Project Baseline | A project’s baseline is defined as the original approved scope, cost and schedule. The project’s baseline is used to measure how actual performance deviates from the plan. |
| Project and Portfolio Management System | A centralized software application used to track all projects and in some cases used to organize operational tasks in (IT) departments. |
| Project Manager | The Information Technology (IT) personnel who has responsibility of planning, execution, and closing of a project. This individual will manage the entire project and ensure that the project is compliant with PMO Project Methodology. The subject matter expert for project management activities and processes. |
| Project Task Dependency Types | Finish to Start (FS). Task cannot start until a prior task or tasks are completed. <this is the most common type of task dependency and is the default setting in MS Project>  Finish to Finish (FF). Task completes concurrently with another prior task or tasks.  Start to Start (SS). Task starts at the same time as another task or tasks.  Start to Finish (SF). Task cannot finish until another task or tasks are started. |
| Project Types | Small Scale Project – Typically, a small project is departmental in focus. This may include small organizational improvements or enhancements to current practices and/or procedures. Often this may include process improvement efforts, updates or minor enhancements to an existing information system or an incremental product development project. Small scale projects are those involving up to 500 hours of effort or less (OIT, team members and stakeholders combined), and will have a small number of implementation team members.  Medium Scale Project – A medium project is often one conducted within an individual business unit. Medium projects typically involve implementing new capabilities to support key business function, and may include significant process improvement projects, systems enhancements, or the development and implementation of new systems to support a single business function. There may be some procurement associated with the project, whether for products, services, or resources. These projects are between 500 and 2000 hours of effort, and may have up to 10-15 Implementation Team members.  Large Scale Project – Large projects tend to be significant and organizationally-driven strategic projects. Large projects are usually aligned with the attainment of key strategic objectives of the organization, and will often have far reaching impact within the organization. These projects may require more extensive use of external consultants and contracting expertise, and will typically have much more complex procurement requirements. Large projects typically require over 2000 hours of resource effort, and likely involve increased size of the implementation teams – often with 30 or more team members.  Time Constraint Project – This is a project that has a specified completion date that must be met. Special attention must be given to adhering to baselined project schedule and applying mitigation efforts whenever issues surface that impact the critical path of the project. Time constrained project can be of small, medium or large type. |
| Sponsor | The person who owns and promotes the project to the University, addresses conflict/issues with other senior executives, ensures project alignment with university’s strategic goals and priorities, and any other duties outlined by the steering committee. |
| Stakeholders | Are any individuals who are affected by the project, .i.e., sponsor, project manager, steering committee, Implementation Team, vendor, and end users. |
| Steering Committee | The governing body of the project that have the responsibility to set the direction of the project and monitor the project’s progression. (Refer to Initiating Phase – Project Team Directory for detail Steering Committee responsibilities.) |

# Appendix B – Project Artifact Checklist

There are a number of project artifacts (documents) that will be produced and distributed during the course of a project. Some of these are considered mandatory for all projects and others may not be applicable depending on the size/scale of the project or what is involved in a particular project. Project aspects for considering which artifacts to include:

* Type of data project deals with (Restricted, Internal, Public)
* Degree of strategic alignment
* Risk associated with project
* Impact to the end user
* Size/complexity (Small: less than 500 hours, Medium: 500-2000 hours, Large: over 2000 hours).

Below is a list of the project artifacts and some guidelines to assist the project manager and project team to determine what project artifacts a particular project should produce. For each of the artifacts the PMO has made templates available.

Standard (Required) Project artifacts:

All Phases:

* Agenda
* Minutes

Initiation Phase:

* Project Charter
* Project Contact List
* Communication Plan
* Project Artifact Checklist

Planning Phase:

* Test Plan
* Traceability Matrix
* Risk Management Plan

Execution Phase:

* Risk Log
* Status Report

Closing:

* Closure Report

Optional recommended Project Artifacts based on project manager and team assessment. Below are some questions/considerations to assist the project manager and the team to decide which additional project artifacts are appropriate for a given project. Even if an artifact doesn’t meet criteria as required and is considered optional, it is for the project manager and team to determine if appropriate to include as a project artifact. Use the [**Artifact Check List**](https://eas.rutgers.edu/pmo-docs/sdlc/PMO%20Artifact%20Checklist%20-%20Template%20v8.1.xlsx) to track the project artifacts and why you may be ‘opting out’ of completing a document

Initiation Phase:

* **Guiding Principles**
* If this project consists of analysis of new or old business processes for the purposes of choosing or architecting a new system this artifact is considered required.

Planning Phase:

* **Requirements Analysis**
* Optional for all projects unless Sponsor, SC or OIT management requests it be completed.
* If an RFP is being issued as part of this project then this artifact is highly recommended.
* **Business Process Model**
* If business processes affected by this project are extensive/complex or if they are anticipated to change as part of this project, then this artifact is considered required.
* **Architecture Design Document**
* If a new infrastructure and/or application design is required and this project is of Medium or Large size, this artifact is considered required.
* **Security Plan**
* If the type of data for this project is considered Restricted, this artifact is considered required.
* If the type of data for this project is Internal and this project is of Medium or Large size, this artifact is considered required.

Note: Please also refer to IT related Policies and Standards at: https://rusecure.rutgers.edu/policies-standards-guidance-and-compliance

* **Data Management Plan**
* If the production system has new data integration, data mining or database design, this artifact is considered required.
* **Disaster Recovery Plan**
* If the system is critical to daily business functions, this artifact is considered required.
* **Development Plan:**
* If coding or configurations are needed and if this project is of Medium or Large size, this artifact is considered required.
* **Budget, Procurement & Vendor Management Plan**
* If this project will be using vendors, will be purchasing assets or the project manager is required to manage the budget then this artifact is considered required.
* **Post Implementation Plan**
* If this project is of Medium or Large size and is a new system or will be managed by new support group, this artifact is considered required.
* **Training Plan**
* If training of administrators or end users will be needed then this artifact is considered required. For small projects, this template maybe tailored to meet the needs of the training.

Execution Phase:

* **Production Cutover Plan**
* If this project is of Large size and high impact to end users, this artifact is considered required.
* If this project is of Medium size and high impact to end users, this artifact is highly recommended.
* **Budget Tracking**
* If this project has a budget and the PM is responsible for tracking the budget, then this artifact is required.
* **Change Request**
* If this project is of Medium or Large size, this artifact is considered required.
* **Issue Reporting Log**
* If this project is of Medium or Large size, this artifact is considered required.