



ENTERPRISE CHANGE MANAGEMENT PROCESS

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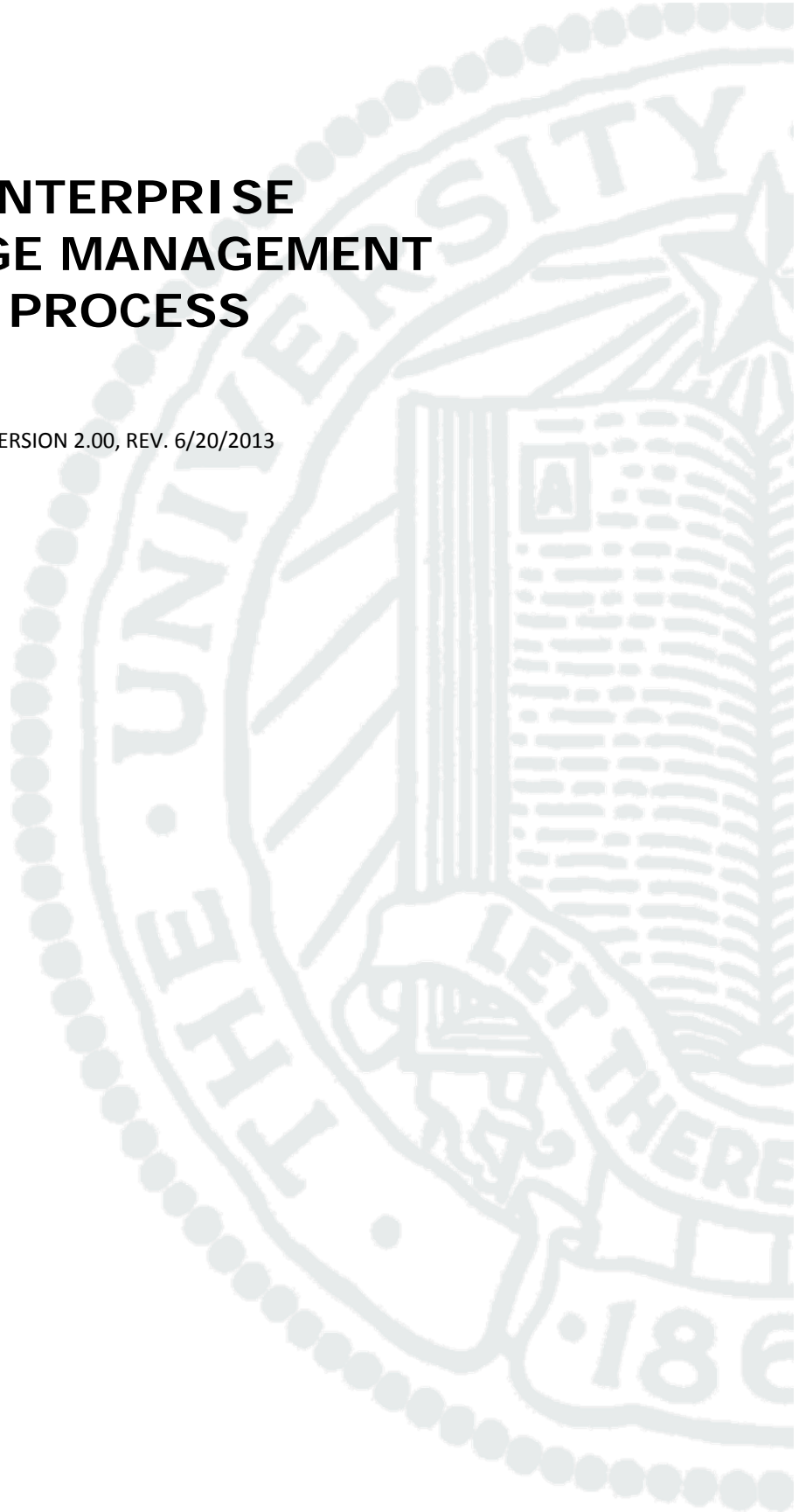


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Enterprise Change Management Process

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1 About this Process Document

1.1 Intended Audience

The document should be read by anyone working within the UCSF Enterprise Change Management process. It should be used to maintain a standard set of practices so that anyone impacted by the practice (customers and providers) have common expectations.

1.2 Assumptions

- A single, common Enterprise change management process is adopted and applied by each business (ITS, Med Center, SOM).
- The change management process assumes a tool-agnostic approach. The process was not designed around the capabilities of any specific tool set, but requires any tool used by UCSF to support the process.
- Appropriateness of the change was vetted before a change request is created. Any change that is submitted in the change management system is assumed to be an approved change by the business or application owner.
- The number and type of approvals required by workflow in the change management system are dependent on the risk level of the change.
- The intent of the change management system is to manage change. Separate ITIL processes such as Incident, Request, and Release and Deployment Management should be managed by systems that integrate with Change Management.
- An implementer (assignee) cannot approve their own change.
- The individual listed as the assignee on the change is expected to be the person actually implementing the change. In cases where a cross-team, collaborative effort is required to implement, the assignee is the person responsible for coordinating the implementation activities.
- A change request cannot go to Work In Progress (WIP) status before the Planned Start Date/Time A change request is required for any change to production. The business may predefine instances where a change request is not required, but the overriding assumption is that any change to production requires a change request even if the implementer is certain that “there is no risk and the change will not impact anything.” Perceived impact does not affect the requirement.

2 Change Management

2.1 Change Management Description

Change Management is the process to manage the introduction of any enhancement, modification, update, installation, or removal of any hardware, software, interface, or database, or document that will impact the existing production environment. It ensures that only approved modifications to the environment are implemented. The change process should provide high visibility and open lines of communication between functional teams and the business. It should provide common expectations and ensure accountability.

2.2 Change Management Objectives

2.2.1 Primary Objectives

The primary objectives of change management are:

- To protect the UCSF infrastructure environment
- To control the introduction of changes to the production environment
- To ensure the outcome of the change meets expectations

2.2.2 Operational Objectives

The operational objectives of a change management program are:

- Assess the impact associated with all changes
- Design to calculate the potential impact a change could have on the UCSF production environment
- Design questions to confirm, or in some cases define the type of change that is taking place
- Define the level of approval required for a change
- Minimize any negative impact resulting from a change
- Communicate all changes to affected groups
- Act as a method of accountability
- Measure and track all changes to the production environment
- Meet contractual or regulatory requirements
- Meet or exceed IT audit requirements
- Meet or exceed IT Service Level Agreements

2.3 When to Submit a Change Request

A change request should be submitted for all enhancements, updates, maintenance, relocations, installs, de-installs of managed configured items in the UCSF production environment including:

- Resource or System Account
- Moves, Adds, Changes and Deletes – Changes to system configuration.
- Schedule Changes – Requests for creation, deletion, or revision to job schedules, back-up schedules or other regularly scheduled jobs managed by IT.
- System hardware

- System software
- Network hardware including cabling, connectors, adapters, etc.
- Network software including configuration settings
- Database including table adds, deletes, re-organization, or maintenance as well as database content.
- Applications
- Telephony
- Adding, deleting or revising security groups
- File permission change
- Documentation such as Business Continuity Plans, Policy and Procedures, Maintenance agreements, Service Level and Operational Level Agreements (SLAs and OLAs).
- For a documented, critical priority incident in an open status
 - A change should be submitted for anything that results in a change to the configuration. This ensures that all configuration changes (planned and unplanned) are documented in one place.
 - A change should be submitted if rebooting a device is required to restart one service when other services are running.
 - A change *is not* required when all services on a device are stopped and a reboot is required to restart.

2.4 When a Change Request is Not Required

There are many IT tasks performed either by IT or by the end users that do not fall under the process and procedures of Change Management. Tasks that are outside the initial scope of the Enterprise Change Management process include:

- Changes to non-production elements or resources
- Changes made within the daily administrative process. Examples of daily administrative tasks include but are not limited to:
 - Password resets of non-critical user accounts
 - User add/deletes
 - User modifications
 - Adding, deleting or revising AD or Unix group changes
 - File permission change
 - Desktop support tasks (software installs/un-installs such as Word, Excel, etc.)

The Change Advisory Board (CAB) may modify the scope periodically to include items in the scope of the Enterprise Change Management process.

2.5 Types of Changes

2.5.1 Routine

A change that is part of the daily routine, is considered low risk, and has a predictable outcome may be pre-approved. The business objective for a Routine, Pre-approved change is to ensure that routine changes receive an appropriate level of review while also minimizing restrictions. The criteria for a standard, pre-approved change are

- The change must be a repetitive, routine activity. Examples can include (but are not limited to):
 - Regularly scheduled, recurring therapeutic server reboots
 - Firewall adds
- The change's calculated risk level must equal Low.
- The change must meet lead time requirements.
- The change must be represented in CAB.
 - Pre-approved changes will not require the same level of scrutiny as other changes but CAB representation may be required to inform stakeholders.

2.5.2 Comprehensive

A normal change is one that is submitted, fully documented, and approved at the IT Director level (if required) and below, and has an implementation date that allows discussion at the next regularly scheduled CAB meeting.

2.5.3 Expedited Comprehensive

An Expedited change is one that does not have a scheduled implementation date that allows discussion at the next scheduled CAB. An expedited change will need to be reviewed and approved by the Expedited Change Advisory Board (ECAB).

2.5.4 Emergency

A change that is directly related to a critical priority incident and that must be implemented in order to restore service is an Emergency change. Emergency changes are auto-approved based on the following criteria

- The change is related to a high or critical priority incident
- The related incident is in a non-closed status

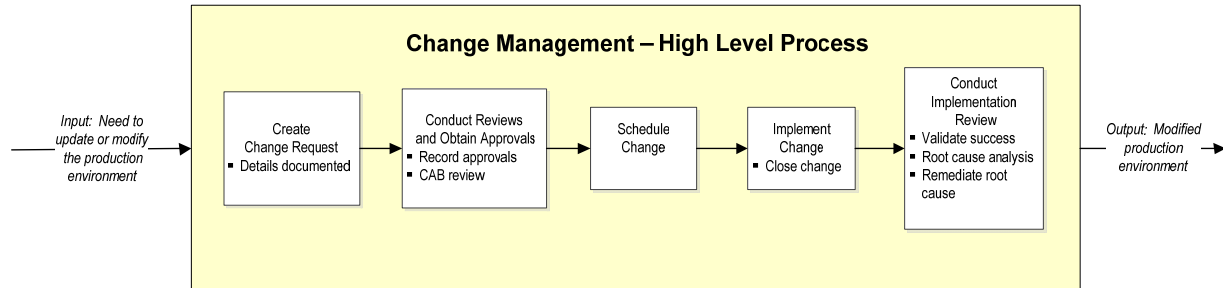
2.5.5 Latent

A change that is logged after implementation, which did not follow the Change Management process. A PIR is required for latent changes. Emergency changes are not considered latent.

2.6 Major Activities within Change Management

2.6.1 High level Process Map

Trigger: Incident or Service Request or Problem



2.6.2 Request a Change

A change request can be initiated within the incident management process, through a formal request in a request management system, through email, project, problem record or any other method where a need for a modification to the production environment is required. The result is a numbered Change Management Record (CMR) in a change management system.

2.6.3 Approve

Modifications to the environment should only be implemented after the change is approved through a formal approval process. In some cases, changes may be pre-approved. In most cases, changes will need to be reviewed and approved by a peer and manager. High risk changes should be approved by an IT Director. All changes should be reviewed and approved by CAB or ECAB.

2.6.4 Schedule

Approved changes should be added to a Forward Schedule of Change so IT resources and customers can plan for upcoming modifications to the environment.

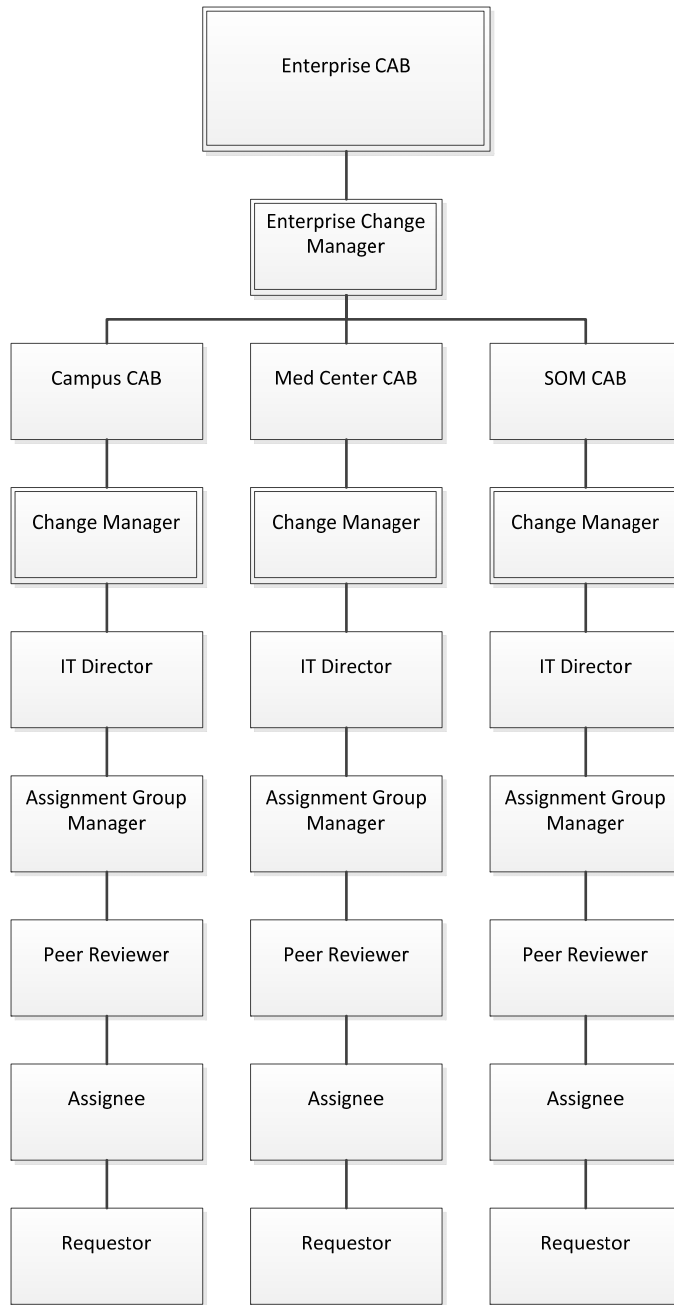
2.6.5 Implement

The change should be implemented within the approved window. Modifications should be limited to only those move/add/change/delete activities that were reviewed and approved. Modifications outside of the scope of the approval should not be made. Once the change has been made and validated, the assignee should place the change request in a "Closed Pending Review" or "Closed" status.

2.6.6 Review

The Change Manager should review closed changes to ensure that changes were implemented as scheduled and that they produced the expected results. A regular review will ensure a continual improvement in the quality of changes.

3 UCSF Change Management Organizational Hierarchy



4 Roles and Responsibilities

This section describes the roles and responsibilities to be performed by the individuals participating in the Change Management process.

4.1 Operational Roles

4.1.1 Change Requestor

An IT requestor may open a change request directly. A non-IT requestor must open a request ensuring that the details of the change are accurate and appropriately reflect what is required. The person initiating the change must have a clear rationale for the change's purpose and be able to clearly articulate that in the request or change request.

4.1.2 Assignee

The person who will be executing the change (the Assignee) is ultimately responsible for successfully completing the change, as well as:

- Submit or update the change management system's Change Management record with all required information.
- Provide detailed and accurate documentation for all proposed changes.
- Obtain technical Peer Review and other required approvals prior to the implementation time.
- Represent the change to the CAB or ECAB as appropriate or alternatively, arrange for someone who can adequately represent the change to attend. The delegate must be familiar enough with the details of the change to answer any of the questions asked during the CAB.
- Facilitates the ECAB review of an expedited change by alerting all required parties to the change, scheduling and facilitating the change review, and ensuring that the Change Manager updates the change status after ECAB approval.
- Ensure that any tasks within the change are completed as planned by the task assignee.
- Implement the change as planned, including validation, and close the change before the scheduled end date/time if able to do so.
- Update the change request with installation notes, status changes, and results.
- Provide detailed instructions to the Configuration Manager for any CMDB updates needed as a result of the change.
- Participate in a Post Implementation Review (PIR) for all emergency changes and changes that were Backed-Out, Incomplete, or Completed with Issues.

4.1.3 Peer Reviewer

- The peer reviewer is someone on the Assignee's team with an equal or better skill set. The peer has the following responsibilities:
 - Review the details of the change plan to ensure they are technically complete and correct.
 - Review the back out and validation plans to ensure there is sufficient detail to be effective.

- Represent the change during CAB or ECAB if the Assignee is unable to do so. The peer must be familiar enough with the change to answer any of the questions that may be asked during CAB.
- Back up the assignee during the actual implementation.

4.1.4 Group Manager

Typically, the technical supervisor or team lead has the role of the Group Manager, and has the following responsibilities:

- Review all changes for the Assignment Group and approve those that meet scheduling and resource requirements.
- Ensure that the plan includes the requirements for communicating the change to stakeholders.
- Represent the change during CAB or ECAB if the Assignee and Peer are unable to do so. The Group Manager must be familiar enough with the change to answer any of the questions that may be asked during CAB.
- Work with the Change Manager when required to coordinate or validate a change's planned implementation schedule.
- Work with the Configuration Manager to add/change/dispose Configured Items as required.

4.1.5 IT Director

An IT Director has responsibility to:

- For high risk changes not related to an incident, approve, deny, or send changes back for more information.
- Ensure that high risk changes are in alignment with the business' direction and strategy.

4.1.6 Change Manager/Process Owner

There should be one, primary Change Manager within each of the CABs. The Change Manager has the responsibility for all Change Management (CM) activities within the organization and has the following specific responsibilities:

- Facilitate the CAB meetings.
- Record a change's final approval in the change management system.
- Review the efficiency and effectiveness of the CM activity.
- Analyze change requests to determine trends or apparent problems that are occurring.
- Recommend tool enhancements to support CM.
- Share information with Problem Management.
- Coordinate release schedules with the Release Manager to minimize impact to the production environment.
- Train and develop CM resources.
- Run post-change review meetings as needed to evaluate trends, discover lessons learned, etc.
- Review changes for process compliance.
- Publish change report showing changes to be discussed during CAB.
- Participate in monthly enterprise CM process review meetings

4.1.7 Change Advisory Board (CAB)

Independent Change Advisory Boards exist in the Campus, Med Center, and School of Medicine environments. CAB members include:

- Representatives of technical disciplines such as network, Wintel, Midrange, clinical and financial applications.
- Advocates for the businesses within the CABs' scope.
- Executive leadership.
- Service Desk.

The CAB has the following specific responsibilities:

- Assess proposed changes for impact.
- Approve, deny, or request more information as appropriate.
- Supports adherence to Change Management policies and processes.

A report from the change management system describing the upcoming changes schedule should be distributed far enough in advance to allow for an adequate review by stakeholders. Alternatively, an online report showing changes to be represented and discussed during CAB should be published.

4.1.8 Enterprise Change Advisory Board (Enterprise CAB)

Enterprise CAB members include:

- Representatives of technical disciplines such as network, Wintel, Midrange, clinical and financial applications.
- Advocates for the businesses within Campus, Med Center, and School of Medicine.
- Executive leadership.
- Service Desk.

The Enterprise CAB has the following specific responsibilities:

- Assess proposed changes for impact to the Enterprise.
- Approve, deny, or request more information as appropriate.
- Supports adherence to Change Management policies and processes.

4.1.9 Expedited Change Advisory Board (ECAB)

The ECAB, which is typically a subset of the CAB, is usually convened for changes that do not meet defined lead-times. The members are not necessarily the same for every change. The nature and scope of the change would direct who the Change Manager contacts.

ECAB has the following responsibilities:

- Assess proposed changes for impact.
- Approve, deny, or request more information as appropriate.
- Supports adherence to Change Management policies and processes.

4.2 Supporting Roles

4.2.1 Executive Leadership

- Defines the strategic requirements for Change Management at UCSF.
- Approves, publishes policies and procedures defining specific change management expectations.
- Enforces compliance.

4.2.2 Process Management Team

- Defines the Change Management process.
- Drafts policies and procedures. Submits to the Executive Leadership for approval and publication.
- Responsible for training.
- Maintains documentation pertaining to the Change Management process.
- Coordinates all modifications to the change management system as required by evolving business needs.

4.2.3 Configuration Manager

- The Configuration Manager is responsible for making all additions and modifications to the CMDB that may arise as a result of a change, specifically:
 - Create new CI's in a timely fashion.
 - Search for records requiring their attention and update attributes of CI's accordingly.
 - Create and maintain relationships between CI's.
 - Provide ad hoc reporting on CI's if requested.

4.2.4 Stakeholders

A Stakeholder is any party interested in or dependent upon the outcome of a change.

Stakeholders are responsible for:

- Reviewing publically available sources for changes that they are interested in or dependent upon.
- Attending CAB.
- Working with the Assignee to resolve any issues that may delay implementation of the change.

5 Requesting a Change

5.1 Submitters

IT Groups

Members of IT Assignment Groups will have access to a change management system so when a change is required; they will submit the record directly.

Non-IT Users submitting a change

Non-IT users will request a change through the Request Management system. They can use Employee Self Service (ESS), call or email the service desk to request that a specific change be made. The request will be assigned to the appropriate IT Resource who will submit a change request and manage it through completion as required.

5.2 Information Required to Create a Change request

To create a change request:

- Identify responsible Assignment Group and Assignee.
- Define the change window which includes a planned start/end time and duration. The change window includes separate entries for:
 - Planned Start Date/Time
 - Implementation (in hours or fractions of hours)
 - Validation (in hours or fractions of hours)
 - Back-out (in hours or fractions of hours)
- Define the Approvers.
- Document Work information such as short descriptions of the change and justification.
- Define Change, back out, and validation plans:
 - The Change Plan should include enough detail to explain what will be done
 - Back out plans should include the trigger that will be used by the assignee to transition from the implementation to the back out procedure
 - Validation plans should include steps to verify that the change fulfilled the technical and business objectives. It should also include steps to verify that existing functionality was not unintentionally affected
- Document the impact to the business and calculate the level of risk.
- Identify the Configuration items (CIs) that will be added, removed, or modified by the change.
 - Identifying downstream, dependent CIs is not required if they are not being added, removed, or directly modified.

5.3 Review and Approval

Review and approval refers to the work flow that results in evaluation of the documentation within the change request (change description, implementation plan, back out plan, validation, schedule and duration, risk assessments, etc.).

The review and approval work flow includes review, evaluation, and approval by stakeholders, peer, manager, IT director, and a Change Advisory Board (CAB) or Expedited Change Advisory Board (ECAB).

5.3.1 Who Approves and When

The number of approvals that are required for a Comprehensive or Expedited Comprehensive change are based on risk. Routine pre-approved changes and emergency changes are pre-approved and do not require a peer review or any formal approvals by a manager or IT director.

Comprehensive and Expedited Comprehensive changes will require a peer review, as well as, a Group Manager, and (potentially) an IT director to record their approvals in the change management system.

	Review and Approvers Required	
Risk Level	Comprehensive	Comprehensive Expedited
High	<ul style="list-style-type: none"> Peer Reviewer (informal) Group Manager IT Director CAB 	<ul style="list-style-type: none"> Peer Reviewer (informal) Group Manager IT Director Expedited CAB via email
Moderate	<ul style="list-style-type: none"> Peer Reviewer(informal) Group Manager CAB 	<ul style="list-style-type: none"> Peer Reviewer (informal) Group Manager Expedited CAB via email
Low	<ul style="list-style-type: none"> Peer Reviewer (informal) Group Manager CAB 	<ul style="list-style-type: none"> Peer Reviewer (informal) Group Manager Expedited CAB via email

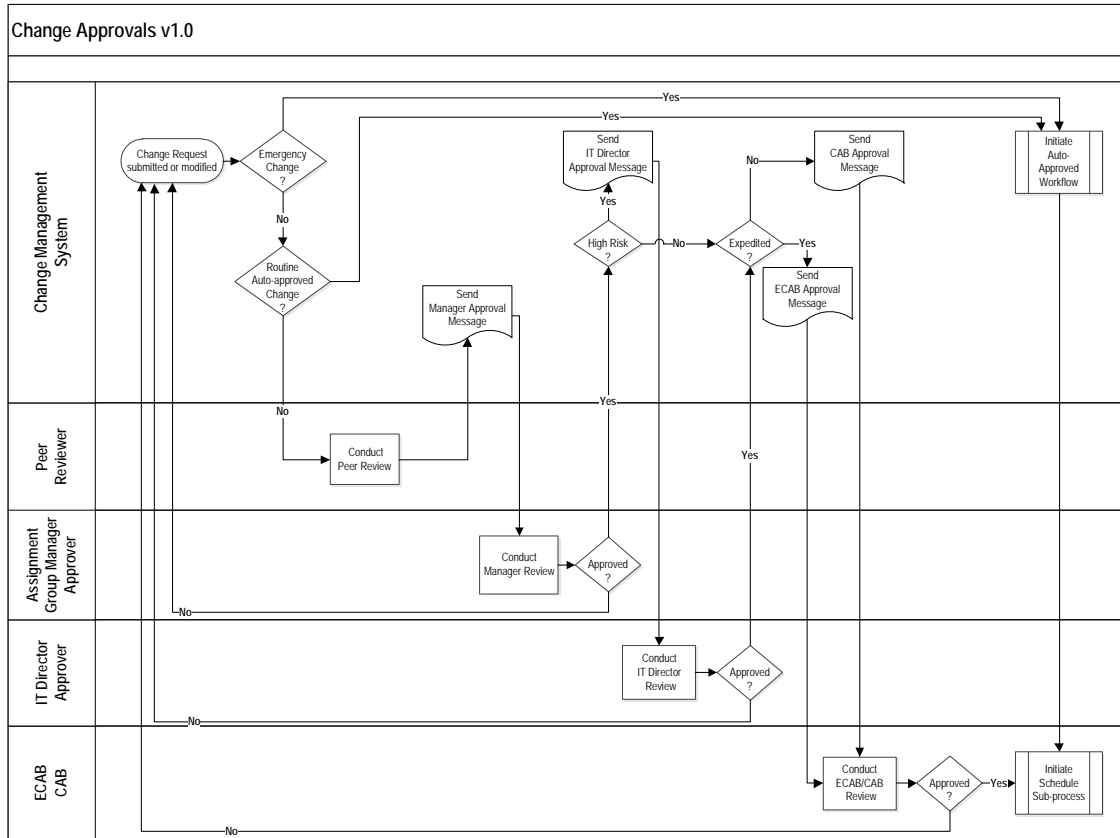
5.3.2 Types of Review and Approvals

The types of review and approval include

- Peer review – A peer of the assignee must evaluate the technical aspects of the change as recorded in the change request. The peer should evaluate the implementation, validation, and back out plans to ensure that the documentation is complete and correct. A peer review ensures that enough detail exists in the documentation for someone other than the assignee to follow and successfully implement the change. Anyone in the assignee’s group can be designated the peer reviewer of the change.
- Pre-approved changes – Changes that present no risk to the business or changes required to resolve an open, critical priority incident (emergency change) are pre-approved. Routine change types require initial review by the CAB but once the type is approved do not require individual CAB review or approval.

- Group Manager Approval – A manager (or delegate) evaluates a change less on a technical level and more on a logistical level. They must ensure that:
 - All of the required documentation is in the change request and is of sufficient quality to be presented to the CAB or ECAB.
 - The assignee has the skill set required to successfully implement the change, that the assignee is available, and that the assignee knows that they are scheduled to implement the change.
 - Impact to the environment is fully assessed.
 - There are no scheduling conflicts, for example:
 - First or last day of the month
 - Peak usage time
 - Restricted windows
 - Business owner approvals are recorded in the change request.
 - Communication requirements and lead times are being met.
- IT Director Approval – The IT Director approval is required for high risk changes. The director should look at what is being done, why, and evaluate the high risk change against business benefit. A Director’s approval is an acceptance of risk on behalf of the business.
- Change Advisory Board (CAB) approval (including ECAB) – A CAB group provides an oversight function for changes occurring within their organization. They are responsible to ensure that changes are scheduled to minimize conflicts with other changes and to minimize disruption to the user community. There is one CAB Group for each of the major organizations at UCSF, Campus, Medical Center, School of Medicine, and a CAB for the Enterprise. CAB review and approval is an acknowledgement that:
 - The change’s benefit outweighs the risk.
 - The change complies with the required process.
 - The required documentation is present.
 - The required communications were made (or will be made).
 - Sufficient review has taken place to ensure that stakeholders are aware of and do not object to the change.

5.3.3 Approval Workflow



5.4 Status and Status Transitions

Status documents the current state of a change request and will progress through a sequence of steps until it reaches a terminating status (Closed or Cancelled). The table shows each status and their allowable transitions.

<i>State From / State To</i>	Open	Planning	Pending Approval	Scheduled	Work In Progress	Closed Pending Review	Closed	Cancelled
New ticket (not yet submitted)	All Change Types	All Change Types						
Draft	All Change Types	All Change Types						All Change Types
Planning		All Change Types		Routine, Emergency, or Latent only	Routine or Emergency only			All Change Types
Pending Approval		Comp or Exp Comp Only	Comp or Exp Comp Only					Comp or Exp Comp Only
Scheduled		Comp, Exp Comp, Emergency, or Routine Only		Comp, Exp Comp, Emergency, or Routine Only	Comp, Exp Comp, Emergency, or Routine Only			Comp, Exp Comp, Emergency, or Routine Only
Work In Progress					Comp, Exp Comp, or Routine Only	Comp, Exp Comp, or Routine Only		
Closed Pending Review						All Change Types	All Change Types	
Closed		All Change Types					All Change Types	

6 Implementing the Change

6.1 Change the Status

Except for pre-approved changes (Routine and Emergency), a change cannot be implemented unless it has been reviewed and approved at all required levels. Once the final approval is received, the Change Manager will change the status from Pending Approval to Scheduled.

Before initiating the actual change activity, the assignee should change the status from Scheduled to WIP. The change cannot go to WIP before the scheduled start date/time.

6.2 Update the Actual Start Time

After changing the status to WIP, the assignee should update the actual start date/time.

6.3 Document activity in the Work Log

The assignee should document the change activities in the work log. Examples of the kind of information that would be appropriate are:

- reaching key milestones in the implementation reached
- unexpected issues with the implementation
- the start/stop of validation as well as any unexpected results
- the reasons for backing out a change or closing the record as incomplete

7 Closing a Change

7.1 Update the Result Codes

A Result Code records the results of the change. A code other than *Successful* is considered an exception. Result codes include:

- Successful
- Backed out
- Completed with issues
- Incomplete

7.2 Work Log

On closure, the assignee should document the results of the change as well as

- the reasons for backing out a change
- issues that delayed or complicated the implementation
- issues that result in closing the record as incomplete (if appropriate)

7.3 Update the Configuration Manager

The assignee should notify the Configuration Manager if any configured items were added, removed, or if any of the tracked attributes changed. Tracked attributes could include:

- Software or OS version number
- Patch level
- Serial Number
- Asset tag number
- Status change – for example, going from an “in inventory” status to “deployed.”

7.4 Post Implementation Review

A Results Code of any value except *Successful* will require the approving Assignment Group Manager to perform a Root Cause Analysis (RCA) of the exception. The RCA should document

- A description summarizing why the change was not successful
- A description of the business impact
- A description of the root cause
- A description of effort that will be put in place to prevent a similar exception

The objective of the Post Implementation Review is to:

- Define the change and events that resulted in the exception
- Identify the root cause
- Identify potential actions to mitigate future occurrences

8 Limited Change/Blackout Windows

8.1 Limited Change/Blackout Window Description

A Limited Change Request or Blackout Window is required when the success of a major activity may be impacted by other changes to production. Approval is required by the Director of the requester and acknowledgement by affected IT Groups and Leadership (ex. CAB, Managers, Directors and CIO).

8.1.1 Limited Change Window Definition

A window that requires a limited freeze on changes. A heightened review of changes is required. An IT Director must approve any changes that must be implemented during the window. The majority of requests for a change window to be implemented are Limited Change Windows.

8.1.2 Blackout Window Definition

A window that freezes all changes. No other changes can be implemented during this window. For example, a Data Center move could require a Blackout Window since the availability of all resources would be required and no changes could be implemented.

8.2 Obtaining Initial Approval

The Requester must obtain approval from their IT Director for any Limited Change Request or Blackout Window.

In addition, the Requester must:

- Review any existing changes to occur during window
- If requested, attend IT leadership meetings to provide additional information
- Notify existing change ticket owners and coordinate modifications to their change requests that conflict with your Limited Change or Blackout window
- Attend affected CAB(s) to announce the window and provide additional information

8.3 Submitting a Limited Change/Blackout Window Request

A Limited Change request or Blackout Window request must be submitted via Incident ticket to the Change Manager a minimum of 30 days prior to the start of the requested window. This will allow the Change Manager sufficient time to review the request, provide notification, distribute announcement, and hard-code the window in the Service Management Ticketing System.

The request must include the following information:

- Window Type (Limited Change Request or Blackout):
- Title of Event (ex. Interface Engine Upgrade):
- Requester:

- Approving IT Director:
- Window Start Date and Time:
- Window End Date and Time:
- Purpose of Window:
- Risk:
- Services Impacted:
- Customer Impact:
- Change Plan:
- Backout Plan:
- Test Plan:

8.4 Notification of Window

When the Limited Change or Blackout Window is approved, the Change Manager coordinates an announcement to all impacted customers, IT Groups and Leadership (ex. CAB, Managers, Directors and CIO). The announcement is then distributed by the IT Service Desk.

The Change Manager then enters the Limited Change or Blackout Window into the Service Management Ticketing System, requesters are alerted when their change request conflicts with a Limited Change or Blackout Window. The requester should consider rescheduling their change outside the window and if that's not possible, then IT Director Approval is required.

8.5 Submitting a Change Request during a Window

If a change is necessary during an existing Limited Change or Blackout Window, a requester must:

- Consult with their Change Manager
- Consult with the Limited Change or Blackout Window Requester
- Obtain approval from their Group Manager and IT Director

9 Measuring Success

An assignee will document in a change request who is modifying the environment, what is being modified, and when. To measure success, an evaluation should be made to verify that:

- The change was implemented by the person or group defined in the record.
- All of the components approved for the change were implemented – no more, no less.
For example:
 - If a change is approved to make specific changes to system A, B, C, and D and all of the objectives are met, then the change is successful.
 - If the assignee makes changes to A, B, and C only, then the change would be flagged as an exception because it didn't accomplish all of the objectives that were defined, reviewed, and approved.
 - If the assignee makes changes to A, B, C, D and is making such good progress that they decide to also make a change to E, then the change should be flagged as an exception because making a change to E falls outside of the approval.
- The change was completed and the record closed within the approved window. Assuming that all of the approved objectives are met:
 - If a change request is reviewed and approved with a window that closes at 1:00:00 PM and the record goes to a closed status before 1:00:00 PM, the change is successful.
 - If the change request closes at 1:00:01, it was closed outside of the approved window and as a result, would be flagged as an exception.

10 Reporting

- Change Schedule
- CAB report should present:
 - Short description
 - Assignee data
 - Change window durations
 - Change details
 - Validation plan
 - Back out plan
 - CI data
- Number of changes in x period:
 - Summarized by assignee group
 - Summarized by assignment group with a calculation showing percentage of success
- Change Success:
 - Status = closed, disposition = successful AND status history closed time is less than planned end time
 - Summary chart showing overall success for changes in the last x days or last calendar month?
- Number of changes in x period by type:
 - Count and percentage of Routine Changes
 - Count and percentage of Comprehensive changes (meets lead time)
 - Count and percentage of Expedited Comprehensive changes (does not meet lead time)
 - Count and percentage of Emergency changes (satisfies criteria for an emergency change)
 - Count and percentage of changes by results code
- Orphaned changes:
 - Count of changes in x period with a status of Scheduled where the planned end date/time is less than the report run time.

11 Definitions

Term	Description
Attribute	A piece of information about a configuration item, i.e. serial number, OS version number, patch level, etc.
Change Ticket	A record in the change management system that documents the specific details of a modification to the production environment. The Change Ticket is reviewed by all levels of approvers and presented to CAB or ECAB for final authorization to move the change into production. A Change Ticket is the byproduct of a Request for Change (RFC).
Change Schedule (CS) (formerly known as the Forward Schedule of Change)	Defines the changes that are to be delivered in the future. Details such as the nature of the change and the expected date and time and duration of any service outage are included as part of the CS. The document is distributed to stakeholders (customers, suppliers, vendors and the Service Desk).
Configuration Item (CI)	IT infrastructure components are called Configuration Items (CIs). CIs include hardware items, software components, network items, documentation and any part of the IT infrastructure or items associated with it which the organization wishes to control. CIs can be defined down to the lowest level at which a component can be independently installed, replaced or modified. Configured Items often have multiple attributes.
Lead Time	The interval of time between CAB review and implementation. If a change's planned implementation date/time is after the next CAB, the change meets lead time and the change follows the standard approval work flow. If a change's planned implementation date/time is before the next CAB, the change does not meet lead time. It is an expedited change and must follow the expedited approval work flow.
Change Request	A formal request to effect a modification to the production environment. The request can be made through a request management system, incident management system, through email, or any other method that creates an audit trail. The result is a numbered Change Management Record (CMR) in a change management system.