Change Management Process

Vanderbilt University IT

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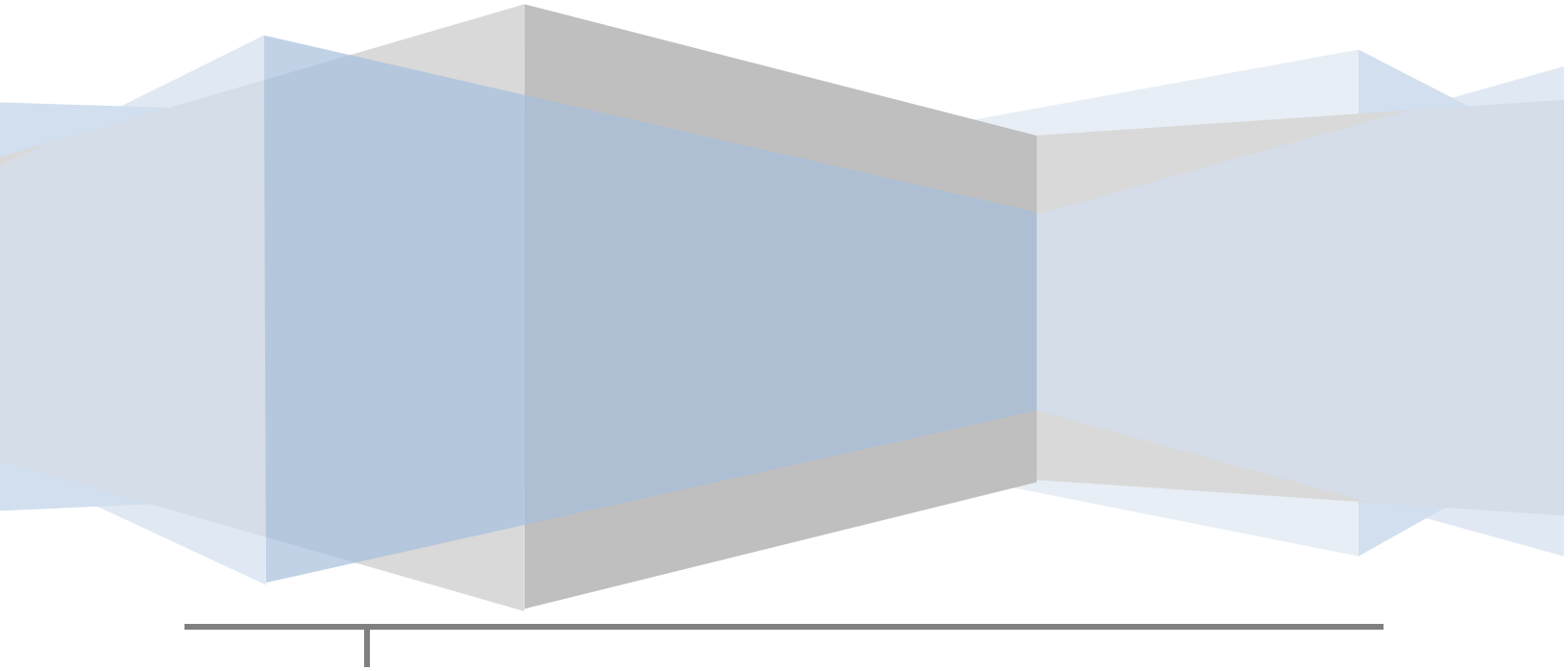
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VERSION HISTORY

Date	Version	Who	Comments
8/5/2016	1.0	VMWare & VUIT Working Team	First draft
8/8/16	1.1	VUIT ITSM team	Edits
8/10/2016	2.0	VMWare	Modified for more clarity regarding 2 approval points – Build & Test and Deploy (Implementation)
8/22/2016	2.1	T. Osborne	Edits and clarification
9/8/2016	2.2	T. Osborne	Updated process for non-prod
11/15/2016	2.3	T. Osborne	Updated based on the Cherwell tool configuration
12/9/2016	2.4	T. Osborne	Removed "Test" from Build and Test status, general clarification and edits to reflect updates to the process and tool
1/30/2017	2.5	T. Osborne	Clarified process for changes implemented outside of Scheduled window, obtaining business approval. Added 'Partially Successful' to Information in the Change Record.
1/23/2018	3.0	T. Osborne	Updated with revised change processes
3/30/2021	3.1	T. Osborne/T. Wolff	Updated change freeze process, Visio flowcharts, aligned process verbiage to reflect updates in SerVU change form

INTRODUCTION

This document describes the Change Management process for VUIT. It is based on the Information Technology Infrastructure Technology Library® (ITIL) and adapted to address VUIT's specific requirements.

This document is divided into the following sections:

Section	Description
Objectives & Scope	Specifies the objectives of the Change Management process and what types of changes are "in scope" of the Change Management process versus "out of scope" relative to the Change Management process.
Types of Changes	Changes are categorized into different types based on risk. Changes with a higher risk level follow a more robust approval process.
Change Priority	How changes are prioritized into urgent, high, medium and low.
Categorizing Changes	How changes are categorized for reporting.
Process Flow	Diagrams illustrating the high-level Change Management process. In particular, the following scenarios are covered: • Normal Changes - including low, medium and high risk changes • Emergency Changes • Standard Changes • Informational • Nominating a Standard Change
Roles & Responsibilities	Identifies the roles within the Change Management process and the responsibilities for each role.
Change Management Policies	Policies that support the Change Management process.
CAB/eCAB Membership & CAB/eCAB Meetings	Describes who should be a member of the Change Advisory Board (CAB), eCAB and the agenda for CAB/eCAB meetings.
Information in the Change Record	Identifies the data elements in the Change Record that will captured at various stages through the Change lifecycle.
Key Performance Indicators	Specifies the metrics for measuring the success of the Change Management Process.

OBJECTIVES & SCOPE

OBJECTIVES

The purpose of Change Management is to respond to VUIT's changing business requirements while maximizing value and reducing incidents, disruption and re-work. Change Management achieves this by having standardized methods and procedures for the efficient and prompt handling of all changes. These methods include recording all changes and then evaluating, authorizing, prioritizing, planning, ensuring the testing and documentation, implementing, and reviewing changes in a controlled manner.

The specific objectives of Change Management at VUIT are:

1. Establish a standard process and tool for managing changes.

2. Ultimately provide good, stable service to the users.

3. Right-size the approval process based on the level of risk.

4. Improve communications regarding changes.

5. Provide greater visibility into the Change Calendar.

6. Capture metrics and lessons learned to continuously improve the Change Management process.

SCOPE

The Change Management process begins when the change is requested by the customer or initiated by the technician. Where appropriate, technicians should engage the Relationship Management team as soon as possible.   Engaging affected customers early in the change process provides for:

- Better governance, prioritization and planning of work
- Early impact analysis and avoids delays and rework
- Increased Change Calendar visibility

The following types of changes are in-scope for the Change Management process:

1. Production: All hardware, operating system and software changes.
2. Non-Production: All hardware, operating system and software changes in a development, test or pre-prod environment. This includes anything that is shared by other teams or workgroups. Use of the Change management process in non-production is performed at the discretion of Directors. The Standard or Informational change types may be used.
3. Changes under VUIT control with cloud service providers.
4. All changes to applications.
5. Informational changes driven by vendors or third parties, including organizations outside of VUIT.

The following types of changes are out-of-scope:

1. Individual desktop/laptop changes, handled through Request Management.
2. Service requests including access request, handled through Request Management.
3. Lab equipment that does not impact anyone other than those supporting it.
4. Break/fix situations to restore service back to a normal state such as a reboot or restart, handled through Incident Management.

TYPES OF CHANGES

There are four main types of changes:

Type of Change	Comments
Standard Change	A low risk (in this case "low risk" is being used as a general term, as opposed to the formal definition calculated by the Risk Questionnaire), frequently occurring, routine change that has a pre-approved Standard Operating Procedure.
Normal Change	A change that follows the normal process flow that may require approval by the Change Manager or the Change Advisory Board (CAB). Normal Changes are further categorized into high, medium or low risk. Please refer to the Risk Questionnaire below for determining the level of risk. A Fast Track change is a change that is submitted as a Normal change but must be expedited with the following justification: for Financial or Legal reasons, Vanderbilt Reputation, Critical Vulnerability or at the discretion of a Director.
Emergency Change	A change to resolve an outage or pending outage, or to address a regulatory or security issue. Emergency changes must have a related Incident ticket and must be approved by a Director (verbally, by email or text). The change is generally recorded after the Incident has been resolved.
Informational Change/Non-Production	A change that is driven by a vendor or third-party that is being recorded to aid with communication (such as the Change Calendar) OR a change that is being performed against development, test or pre-prod CI infrastructure.

Normal Changes are categorized into high, medium or low risk. To determine the risk level, answer the following Risk Questionnaire.

- Low Risk: < 5
- Medium Risk: 5 to 10
- High Risk: > 10

Score Question	1	2	4
1. **Number of users impacted**	Single Team or Dept	Multiple Teams or Depts	All Users in Dept

Score Question	1	2	4
2. **Criticality of the service to the business**	If an outage occurs, critical business processes can continue	If an outage occurs, critical business processes cannot continue	Business critical (outage results in direct loss of revenue, impact on brand, compliance, etc.)
3. **Number of teams involved with implementation**	Implementation activities are limited to a single VUIT team	Implementation activities involve coordination of multiple VUIT teams	Multiple VUIT teams need to coordinate resources outside VUIT
4. **Can it be tested? Can it be backed out?**	Can be tested and backed out easily	Cannot be tested and/or cannot be backed out easily	Cannot be tested nor backed out easily

The following table specifies the minimum lead time for submitting the change and the approval process.

Type of Change	Recommended Lead Time from Submission to Approval	Approval process
Standard Change	Same day	• Pre-approved
Normal – Low Risk	1 business day	• Change Owner Manager approves online. • The Change Manager provides online CAB approval for implementation.
Normal – Medium Risk	7 business days	• Change Owner Manager approves online. • Technical Review Board approval is required. The need for an Architectural Review will be determined within the TRB process activity. • Relationship Managers approve online if change is outside a defined Approved Maintenance Window. • Change Manager provides online CAB approval for implementation.

Normal – High Risk	14 business days	- Change Owner Manager approves online. - Technical Review Board approval is required. The need for an Architectural Review will be determined within the TRB process activity. - Relationship Managers approve online if change is outside a defined Approved Maintenance Window. - Change must be reviewed and approved at a CAB meeting before implementation.
Normal – Fast Track	Less than required lead time based on risk	- Must have the following justification: for Financial or Legal reasons, Vanderbilt Reputation, Critical Vulnerability or at the discretion of a Director. - Requires Director approval. - Technical Review Board approval required for Medium and High risk changes. - Has a High or Urgent Priority. - eCAB reviews/approves for implementation.
Emergency Change	N/A	- Requires a related Incident ticket, to be documented in the change record. - Director provides Change Owner with verbal/email/text approval, to be documented in change record. - Director will consult / inform other stakeholders as they deem necessary. - Change Owner may record the change after the fact to lessen impact duration. - Change to be reviewed at next available CAB meeting.

THE PRIORITY OF THE CHANGE IS DETERMINED BY THE FOLLOWING MATRIX:

		Impact		
		Most Users in the Enterprise	Multiple Teams / Depts	Single Team/Dept
Urgency	Work is blocked	Urgent	Urgent	High
	Work is degraded or potentially degraded	High	High	Normal
	Work is unaffected	Normal	Normal	Low

CATEGORIZING CHANGES

Categorizing changes helps with reporting. The Reason dropdown field in Cherwell Change Management is used to indicate the reason for requesting a change.

- Break/Fix
- Build
- Cabling
- Configuration
- Decommission/Deprovision
- Deployment
- Group Policy
- Host Migration
- Installation/Provision
- Lifecycle
- Repair
- Restore
- Security/Access
- Security/Vulnerability Patch
- Service Patch/Bug Fix
- Upgrade

PROCESS FLOW

In the next several pages, the process flows for the following types of changes are illustrated:

- Normal Changes – categorized into low, medium and high risk
- Emergency Changes
- Standard Changes
- Informational Changes
- Nominating Standard Changes

The process flows use "swim-lane diagrams" to illustrate which role is responsible for the activity. These roles are described in more detail in the following section titled "Roles and Responsibilities".

NORMAL CHANGE

Normal – Low Risk Change

Change Requester	Change Owner	Change Owner Manager	Change Advisory Board (CAB)
If not the Change Owner, submit change request to Change Owner	Start → Complete change plan details in SerVU change form	Assess and Approve Online	Assess and Approve Online

Yes → (Change Owner Manager to CAB)
No (loops back to Complete change plan details)

Normal – Medium Risk Change

Change Requester	Change Owner	Change Owner Manager	Technical Review Board	Architecture Review Board	Relationship Manager	Change Advisory Board (CAB)

Start

If not change owner, submit request to Change Owner

Complete change plan details in SerVU change form

Assess and Approve Online

No

Assess and Approve Online

Yes

Yes

ARB Review Necessary?

Yes → Assess and Approve

No

No

Yes

Outside Maintenance Window?

Outside Maintenance Window?

Yes → Yes → Does Customer Approve?

No

No

No

No

Yes

Assess and Approve Online

Assess and Approve Online

No

Yes

Implement Change

Review Change

Close Change

Normal – High Risk Change

Change Requester	Change Owner	Change Owner Manager	Technical Review Board	Architecture Review Board	Relationship Manager	Change Advisory Board (CAB)

EMERGENCY CHANGE

Emergency Change

Change Requester	Director	Change Owner	Change Manager

Start

Resolving an Incident? —Yes→ **Approved?** —Yes→ **Implement change**

No ↓ (Resolving an Incident?)

No ↓ (Approved?)

Follow Normal Change Process

↓ (Implement change)

Change Working?

No ↓

Back-out Change?

Yes← → No

Execute Back-out Plan. Communicate appropriately.

Clearly document steps to resolve incident. Communicate appropriately.

Submit Change Request. Complete PIR tab if Change is not successful → **Review at next CAB meeting**

↓

Close Record

STANDARD CHANGE

Standard Change (Implementing)

Change Requester	Change Owner	Change Manager

Change Requester:
- Start
- Select Change Request from Standard Change Template Library List
- Close Record

Change Owner:
- Build and Implement Change
- Change Working?
  - No → Back-out Change?
    - Yes → Execute Back-out Plan. Communicate appropriately → Post Implementation Review (PIR)
    - No → Post Implementation Review (PIR)
  - Yes → Close Record

Change Manager:
- Review at CAB, evaluate whether this is still a Standard Change
- Close Record

INFORMATIONAL CHANGE

Informational Change

Change Owner

Start

↓

Build Change Description

↓

Move to Upcoming or In Process

↓

Close Record

NOMINATING A STANDARD CHANGE

Nominating a Standard Change (getting it into the Standard Change Template Library)

Change Owner	Change Owner Manager	Change Advisory Board (CAB)	Change Manager

```
Start
  │
  ▼
Select existing
successful Change
  │
  ▼
Update Change Plan
as necessary in
Change Template.  ──────▶  Assess and Approve
                             Online
                               │
                               ▼
                           Approved?  ──Yes──▶  Discuss at CAB
                               │                   Meeting
                               │No                    │
                               ▼                       ▼
                           Cancel              Approved?  ──Yes──▶  Add to Standard
                          (with reason)            │                Change Template
                                                   │No                  Library
                                                   ▼                       │
                                               Cancel                      ▼
                                              (with reason)               End
```

ROLES & RESPONSIBLITIES

CHANGE REQUESTER

The Change Requester is usually an IT staff member. Their responsibilities include:

1. Starts the Change Record by entering the Change Type, Title, Description and Priority and then assigns to the Change Owner or Change Owner Team.

2. Communicates status of the change back to the business or Relationship Management team.

CHANGE OWNER

The Change Owner's responsibilities include:

1. Complete the information in the Change Record, documenting the impact, risk, business and technical justification, pre-implementation test plan, implementation plan, verification plan, and back-out plan.

2. Keep the change requester/business/Relationship Manager informed about the progress of the Change.

3. If there is more than one team involved with the implementation, coordinate the efforts across the teams.

4. Build the change.

5. Deploy the change during the time scheduled, indicating in the change record when the work started and finished in actual time so notifications can automatically be sent. If a change starts before the scheduled window, or ends past the scheduled window, the change will be considered less than successful If a change is entirely outside of the scheduled maintenance window, it is considered Unauthorized.

6. Execute the back out plan if required.

7. Conduct the Post Implementation Review (PIR), if required by the PIR policy.

8. Represent their changes (or send a designate) to TRB/ARB/CAB/eCAB.

CHANGE OWNER'S MANAGER

The responsibilities of the Change Owner's Manager are:

1. Review and approve all change requests submitted by their subordinates, acting as the technical review for Normal – Low Risk changes.

2. Validate the risk and type of change.

3. Validate the Service, Service Category and Service Sub-Category. Update if necessary.

4. Propose improvements to the Change Management process to the Change Manager.

CHANGE REQUESTER'S MANAGER

The responsibilities of the Change Requester's Manager are:

1. Review and seek Director approval for Fast Track change requests by their subordinates, as necessary.

2. Propose improvements to the Change Management process to the Change Manager.

CHANGE MANAGER

The Change Manager's responsibilities include:

1. Validate the type and risk of the Change.

2. Work with the IT teams to identify CAB members.

3. Escalate approval delay issues.

4. Chair the TRB, CAB and eCAB meetings.

5. Provide Implementation approval for Low and Medium Risk Changes.

6. Ensure Post-Implementation Reviews (PIRs) are conducted per the policy.

7. If an unauthorized change is discovered, escalate to IT Senior Management.

8. Report on Change Management activities.

9. Educate IT staff on the Change Management process.

10. Propose and implement improvements to the Change Management process.

CAB/ECAB MEMBER

The CAB is the Change Advisory Board. eCAB is the Change Advisory Board for Fast Track (expedited) changes. Please refer to "CAB/eCAB Members and CAB/eCAB Meetings" section for a list of mandatory members that should make up the CABs. The CAB/eCAB Member's responsibilities include:

1. Review online approvals in a timely manner. Responsible for Implementation Approval on High Risk Changes.

2. Represent their team and their team's changes at CAB meetings.

3. Review changes prior to the meeting.

4. Communicate when a change will impact their area. If they do not approve a change, explain why.

5. Attend or send a knowledgeable representative to CAB meetings.

6. Communicate back to their team.

TECHNICAL REVIEWERS

The Technical Reviewer should have a deep understanding of the technology and be able to analyze the technical feasibility and impact of a change.

1. Review online approvals for Technical Review Board (TRB) in a timely manner.

2. Identify other Technical Reviewers that need to be consulted, and if necessary, whether an Architecture Review Board should be engaged.

ARCHITECTURE REVIEW BOARD

1. Review changes referred by the Technical Review Board.

RELATIONSHIP MANAGER

The responsibilities of the Relationship Manager

1. Secure business approval for Normal – Medium Risk and Normal – High Risk changes that will occur outside of normal change windows.
2. Open Informational changes on behalf of VUIT customers for changes being performed *outside* VUIT.

CHANGE MANAGEMENT POLICIES

1. All Changes that were defined as in-scope, must follow the Change Management process and must be recorded in Cherwell.
2. Relationship Managers will obtain customer agreement on specific change windows for services.
3. If a Normal-Medium Risk or a Normal-High Risk change must occur outside an approved normal maintenance window, the Relationship Manager must secure business approval from the customer.
4. The Change Manager will maintain the change freeze periods on the Change Calendar. If a change must occur within the change freeze period, it must be approved by a Director.
5. Emergency changes can only be used for Incidents that have caused or could cause an outage or significant degradation or for regulatory compliance and security issues. The emergency change must be linked to the Incident and have Director approval (verbal, email or text) prior to implementing. The change is generally recorded after the Incident has been resolved but can be scheduled as appropriate.
6. Fast Track changes must have Director approval. Fast Track changes do not conform to the outlined lead time for approvals.
7. Post implementation reviews are conducted for:
   - Any change that was less than successful
   - High risk and Emergency changes at the discretion of the Change Manager
   - Changes that resulted in a Priority 1 (urgent) or Priority 2 (high) Incidents

   The results of the review must be documented and attached to the change record.
8. Incidents caused by a change must be linked to the appropriate change record.
9. Technical Review Board meetings are Mondays at 2:30pm. Changes must be in Technical Review status by Monday 10am to make the agenda cutoff.
10. All Technical Reviewers in attendance must approve the change in order for a change to be approved.
11. CAB meetings are weekly. High risk changes must be in CAB Approval status by 9am the day of CAB.
12. All CAB members in attendance must approve the change in order for a change to be approved.
13. All changes, except Informational changes, must be associated with at least one Configuration Item (CI).
14. Standard changes are added to the Standard Change Template Library by obtaining approval using the normal Change Management process.
15. Approval by the Director of the change owner, is required to implement Normal changes during a Change Freeze. For shared changes in Pegasus, the VUIT technical approval will ensure there is no change freeze event impact. In the event there is not a VUIT Technical Approver on the change, the review and approval will come from TRB and CAB.

TECHNICAL AND ARCHITECTURAL REVIEWERS

The Technical and Architectural Reviewers consist of the following representatives:

- Network
- Security
- Hosting
- Data center
- ITSM
- Relationship Management
- Cloud Services
- ADI

The Change Owner, Change Manager, Technical Reviewers or Architectural Reviewers can add additional reviewers.

CAB MEMBERSHIP & CAB MEETINGS

CAB/ECAB MEMBERSHIP

The Change Advisory Board (CAB) is used for assessing Medium and High Risk changes.

1. Change Manager
2. Directors from each area (or their delegate) for High Risk changes

The eCAB is used for assessing Fast Track changes.

1. Change Manager
2. Directors from each area (or their delegate)

CAB/ECAB MEETINGS

It is expected that the Change Manager will conduct one (1) CAB meeting a week. The actual frequency may vary depending on the volume of changes.

The general outline for the CAB meeting is:

1. Check for questions or concerns arising from any recently completed Post Implementation Reviews (PIRs).

2. Review Emergency changes implemented in the previous week

3. Review new High Risk changes that were submitted and in CAB Approval status before the CAB agenda cutoff.

4. Review current open changes on the dashboard for awareness.

5. Review nominated standard changes (once a month) or perform annual review for active Standard Change Templates.

The Change Manager will conduct eCAB meetings daily, as required. The actual frequency may vary depending on the volume of Fast Track changes.

The general outline for the eCAB meeting is:

1. Review any Fast Track changes, as needed. Generally performed via email.
2. Communicate to the Change Owner any follow-up required as a condition for CAB Approval.

INFORMATION IN THE CHANGE RECORD

The Change Record is a superset of all information about a Change including, but not limited to, the initial Change Request information. Some information in the Change Record will be stored as database fields whereas other information might be attachments or links to source documents.

The following table lists the fields in the Change Record and who completes the fields:

Field Name	Comments	Completed by Change Requester	Completed by Change Owner	Completed by Change Manager	Completed by Change Owner Manager or CAB Member
Change Number	Unique number for the change.	Automatic			
Change Type	Drop down containing: • Standard • Normal • Emergency • Informational	Mandatory	Validate and update if necessary	Validate and update if necessary	Validate
Change Title	One line description of the change.	Mandatory			
Description	Multi-line description of the change.	Mandatory			
Reason	Drop down containing reasons for performing a change	Mandatory			
Priority	Drop down containing the priority matrix.	Mandatory	Validate and update if necessary	Validate and update if necessary	Validate
Requested By	Who requested the change	Automatic			
Fast Track	Checkbox. Indicates need to expedite the change. Only valid for Urgent and High priority changes.	Optional	Validate and update if necessary	Validate and update if necessary	Validate
Change Owner	Individual who will implement and be accountable for the change.		Mandatory		
Change Owner Team	Team who will implement and be accountable for the change.	Mandatory			
Configuration Item	Look up to select a CI from the CMDB.		Mandatory		Validate
Service Affected	Select from a list of services.		Mandatory		Validate
Service Category	Drop down for classifying the change. Useful to report on what types of changes are occurring.		Mandatory		Validate
Service Sub-Category	Drop down for classifying the change. Useful to report on what types of changes are occurring.		Mandatory		Validate
Business Criticality	Automatically populated based on Service Sub-Category selected.		Automatic		
Risk Survey	See previous section in document		Mandatory	Validate and update if necessary	Validate
Risk Impact	• Not during normal maintenance window? • Requires service outage?		Mandatory		
Risk	Multi-line text field		Mandatory		
Business/Technical Justification	Multi-line text field		Mandatory		
Impact Assessment	Multi-line text field. Who is the customer and how will this change impact them?		Mandatory		

Field Name	Comments	Completed by Change Requester	Completed by Change Owner	Completed by Change Manager	Completed by Change Owner Manager or CAB Member
Pre-Implementation Test Results	Multi-line text field. Was this change tested? If so, what was the result. If not, why and has this been implemented before with any issues?		Mandatory		
Implementation Plan	Multi-line text field. You can enter "see attachment".		Mandatory		
Verification Plan	Multi-line text field. You can enter "see attachment".		Mandatory		
Back Out Plan	Multi-line text field. You can enter "see attachment".		Mandatory		
Scheduled Start Date/Time	Planned date and time for when the change implementation will start.		Mandatory	Validate and update if necessary	Validate
Scheduled End Date/Time	Planned date and time for when the change implementation will end.		Mandatory	Validate and update if necessary	Validate
CAB Review Date	Manually populated for Emergency changes		Optional	Mandatory	
Final Disposition	Drop Down containing: • Successful • Successful-Outside Scheduled Window • Successful-Unauthorized • Partially Successful • Backed Out-Successful • Backed Out-Unsuccessful • Failed • Cancelled • Declined by CAB		Mandatory prior to closure of the Change.		
Actual Start Date/Time	Actual date and time for when the change implementation started.		Mandatory		
Actual End Date/Time	Actual date and time for when the change implementation was completed.		Mandatory		
Review Notes	Multi-line text box		Optional		

KEY PERFORMANCE INDICATORS

VUIT will focus on a few select Key Performance Indicators (KPIs) to measure the success and efficiency of the Change Management process. As the Change Management process matures, the KPIs may change to focus on different areas that need improvement.

1. Number of changes implemented by type, team, etc.

2. Reduction in the number and percentage of emergency changes.

3. Reduction in the number and percentage of fast track changes.

4. Reduction in the number of failed changes / increase change success rate (including success rate of standard changes).

5. Reduction in the number of unauthorized changes.