University of South Florida

ISSP-018

Change Management Standard

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## Revision History

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| 2.0     | 6/3/2019  | Campoe  | • New formatting  
• Merge of SQL Update document with Change Management  
• Normalized use of Standard, Normal, and Emergency changes through the document |
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The University of South Florida is committed to protecting the privacy of its students, alumni, faculty, and staff, as well as protecting the confidentiality, integrity, and availability of information important to the University's mission.

Introduction

Change Management is the process of controlling changes to the production environment while minimizing service disruptions. According to the IT Infrastructure Library (ITIL), “the goal of the change management process is to ensure that standardized methods and procedures are used for efficient and prompt handling of all changes, in order to minimize the impact of change-related incidents upon service quality, and consequently improve the day-to-day operations of the organization.”

Purpose

The purpose of this standard is to define a consistent approach to manage changes to the IT environment at the University of South Florida. This document also outlines the procedure for request, approval, implementation, and review of direct SQL updates to OASIS (Banner), GEMS, and FAST ( Peoplesoft) databases.

Scope

Change Management is responsible for managing change processes for IT resources in the University of South Florida, including, but not limited to:

- Hardware
- Communications equipment and software
- System software
- Applications software
- Environmental changes (Mechanical, Electrical, Plumbing, Alarms)
- Documentation and procedures associated with the running, support and maintenance of systems
- Application and Infrastructure Maintenance activities
- Out of Band Patches
- Disaster recovery facilities and procedures

Definitions
ITIL – Information Technology Infrastructure Library

**Standard Change** – routine, repeatable changes for which a consistent procedure is documented and pre-approved for execution

**Normal Change** – a change that has not been classified as a standard change and that does not warrant an emergency change

**Emergency Change** – a change that must be implemented as soon as possible as a result of a major service outage or security risk

**ITCM (Information Technology Change)** – a formal request for proposing a Change to any component of Infrastructure, Applications, or any aspect of an IT Service. It may be a document or record in which the nature and details of and the justification and authorization for the proposed Change are entered

**CAB (Change Advisory Board)** - a group of people that advises the Change Manager in the assessment, prioritization, and scheduling of Changes. This board is usually made up of representatives from all areas within IT

**eCAB (Emergency Change Advisory Board)** - an emergency meeting of the CAB, usually with a reduced number of members, to consider urgent, high impact Changes. Its membership, which may change from occasion to occasion, therefore needs to represent the knowledge and authority required in these exceptional circumstances. In practice, members may make their decisions without a physical meeting

**CMB (Change Management Board)** – governing committee overseeing the Change Management program

### Standard

1. All USF Information Technology systems and processes are subject to formal Change Management procedures as outlined in the Change Management Standard.
2. Changes will be assessed for the benefit, risk, required resources, and impact to determine the workflow required to manage the change.
3. All Changes will be classified initially by three types:
   - Standard
   - Normal
   - Emergency
4. All Changes must be documented.
5. Normal and Emergency changes must be documented in a change record that documents the details of the change.
6. Emergency changes must be requested using a formal Request for Change (RFC) form.
7. All Changes will adhere to established maintenance windows and Service Level Agreements whenever possible.
8. All Changes must receive Manager or Director approval before being submitted to the Change Advisory Board (CAB) for authorization and scheduling.
9. All Changes must be submitted to the Change Advisory Board before the weekly meeting in which the changes’ proposed implementation schedule.
10. Customer notifications must be completed before the Change implementation.
11. The Change Management Board (CMB) will govern the standard, process, roles, responsibilities, and metrics necessary to facilitate the Change Management program for IT.
12. The Change Advisory Board (CAB), chaired by the Change Manager will serve to review requested changes, assist in the assessment of risk and impact, and coordinate the scheduling of changes. The Change Management Board will appoint members to the CAB.

13. An Emergency Change Advisory Board will review all emergency changes and must be convened at short notice to assess Emergency Changes.

Roles and Responsibilities

The following are the roles and responsibilities within the change management process.

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change initiator or requestor</td>
<td>Business or IT representative who initiates a request for change. This person is responsible for filling out the Request for Change (RFC) form, getting approval for the change, and submitting it according to the change management process.</td>
</tr>
<tr>
<td>Change Manager</td>
<td>This person has overall management responsibility for the change management process in the IT department.</td>
</tr>
<tr>
<td>Change Advisory Board (CAB)</td>
<td>The CAB is a cross-functional team responsible for assessing change requests in terms of business need, cost/benefit, viability, and potential impacts on existing systems or processes. The CAB decides whether to approve, defer, return, reject or cancel changes, and assigns a priority. Also, the CAB makes recommendations related to change implementation.</td>
</tr>
<tr>
<td>Change Advisory Board/ Emergency Committee (CAB/eCAB)</td>
<td>This team (or individual) is a subset of the CAB that is responsible for dealing with emergency changes. The CAB/eCAB must be able to meet on very short notice and authorize or reject changes with emergency priority.</td>
</tr>
<tr>
<td>Change Management Board (CMB)</td>
<td>This team will provide oversight and direction with the Change Management Process</td>
</tr>
</tbody>
</table>

The Change Management Process

The change management process involves:

- Logging changes.
- Assessing the impact, cost, benefits, and risk of requested changes.
- Providing approval or rejection.
- Overseeing the change implementation.
- Monitoring and reporting the status of the change.
- Closing change requests and conducting post-implementation reviews.

Process Workflow

Figure 1 illustrates a high-level workflow of the sequence of processes that are part of change management. See Appendix A for a more detailed view of the process workflow.
Process Description

Each change request will follow these steps:

Change request creation.

The requestor creates a new ITCM request in JIRA to document the change request and submits it to the ITCM Kanban board onto the Planning lane. Once ready to move forward, and all information is completed in the ITCM, the requestor then moves the ITCM to Awaiting Approval status for it to be review by the requestors’ immediate supervisor / Director.

Change assessment.

The requestor’s immediate supervisor / Director receives the ITCM and reviews it for completeness. If some important information is missing, the supervisor / Director returns the ITCM to the planning lane and notifies the requestor of missing information. Important aspects of the change must be examined, including risk to the business, the expected benefit, the probability of success, and the priority of the change based on all factors, including other changes that may be competing for resources and schedules. The requestor and immediate supervisor / Director will also look to determine the desired implementation date and time.

- **Risk**: Risk is to be evaluated based on the impact on service delivery and the probability of success or failure.
• **Benefit:** The benefit to the business operation must be clearly defined to assess the value expected from the change. If the value expected is much lower in proportion to the risk, then the priority would be lower than a change with higher value in proportion to the risk.

• **Priority:** Once the ITCM is analyzed for risk/benefit, the change manager negotiates with the requestor an initial priority for the request. This prioritization is used to establish the order in which changes submitted should be considered, and is more from the requestor point of view.

<table>
<thead>
<tr>
<th>Priority</th>
<th>Explanation</th>
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<tbody>
<tr>
<td>Very High</td>
<td>Requests that, if not addressed immediately, will create a large risk to the enterprise. Immediate action is required. The CAB/eCAB must be convened, and resources may need to be allocated immediately if the request is authorized.</td>
</tr>
<tr>
<td>High</td>
<td>A request that is important for the enterprise and must be implemented soon but not immediately.</td>
</tr>
<tr>
<td>Medium</td>
<td>A request that should be implemented to gain benefits but that is not time pressing.</td>
</tr>
<tr>
<td>Low</td>
<td>A request that is nice to have.</td>
</tr>
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</table>

*Change authorization and prioritization*

At this point, the immediate supervisor / Director approves the ITCM and moves the change to the Awaiting CAB approval lane, and the organization needs to determine a course of action for the ITCM (i.e., change priority, approve, reject, or defer). Who makes this decision depends upon the priority and the risk category of the change:

- If the ITCM has immediate (urgent) priority, the change manager must escalate it as soon as possible to the CAB/eCAB for urgent evaluation (see the roles and responsibilities section for a list of CAB/eCAB members).
- If the ITCM is categorized as low, the change manager can evaluate and decide himself/herself without involving anyone else.
- All other ITCMs must be addressed by the CAB during its monthly meeting.

Once decisions are made, the change manager is responsible for updating the ITCM and moving it to Authorized status on the ITCM Kanban board, and for communicating the decision to the initial requestor.

If the ITCM is approved, the CAB needs to decide when the ITCM will be developed and when it will be implemented in production. Business units are usually competing for scarce IT resources. As a result, getting a consensus about which requests will be developed first is challenging. The best way to make this decision is to establish a rating/voting system based on an agreed upon set of criteria. An example of criteria is:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weight</th>
<th>Description</th>
<th>Values</th>
</tr>
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<tbody>
<tr>
<td>Assigned Priority</td>
<td>40%</td>
<td>How critical are the business needs that this change aims to meet?</td>
<td>3 = High</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 = Medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 = Low</td>
</tr>
<tr>
<td>Tangible Benefits</td>
<td>40%</td>
<td>Does this change lead to cost reductions, time reductions, or sales increases?</td>
<td>3 = Clear and measurable returns</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 = Time reductions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 = Returns unclear, difficult to measure</td>
</tr>
</tbody>
</table>
**Change Implementation**

Once the change is Authorized, all of the following activities must be completed before introducing a change in production:

- Technical tests performed and signed off (e.g., Component Integration Test, System Acceptance Test).
- User Acceptance Test completed and signed off.
- Manager/Director has approved the implementation of the change in the production environment.
- The business owner(s) has/have approved the implementation of the change in the production environment.
- End-user training completed.
- Support personnel training completed.
- Service Level Agreements have been properly modified if necessary.
- End-user and technical documentation have been properly modified if necessary.
- Assessment of impact on business continuity and contingency plans.

**Post-implementation review**

The change manager will perform a post-implementation review during the following weekly change management meetings after the change implementation. This review will evaluate the following aspects of the change:

- Did the change meet its objectives?
- Are users satisfied with the results?
- Has the change created any unexpected side-effects to existing applications or infrastructure?
- Did the implementation plan work correctly? Was the implementation completed on time and within budget?
- If the back-out plan was utilized, did it work correctly?
- What are the lessons learned from this implementation?

Upon completion of the review, the change manager or requestor will document findings in the ITCM and report back to the CAB if required. The change manager or requestor will also move the ITCM to the Done lane on the Kanban board.
SQL Update Request and Approval Process

Request Process

- The requestor of a change will e-mail to the system or module owner the request for the direct SQL change. The email MUST contain:
  - a. The type of SQL action desired (INSERT, UPDATE, or DELETION)
  - b. Expected row count
  - c. A description of the code
  - d. The justification for running the update as a direct SQL change instead of using the tools provided by the application
  - e. A statement declaring whether the change has been tested on a test instance

- The system or module owner will reply to the requestor with the justification and will provide their formal authorization for the implementation of the particular change.

- If the system or module owner is not available, approval must be obtained from the supervisor of the system or module owner. Another delegation is not allowed.

- The requestor will then forward the request and approval to the appropriate Service Now system queue:
  - a. FASTSQL@usf.edu for FAST requests
  - b. GEMSSQL@usf.edu for GEMS requests
  - c. OASISSQL@usf.edu for Banner requests

Approval Process

- IT Applications Support will verify that the request has been justified and approved appropriately. If not, the request will be rejected.

- IT Applications Support will review the SQL statement for correct syntax as applicable.

- If no issues are found, the request is approved and sent to the appropriate DBA Support for processing.

- DBA Support will not process any request that does not have a Service Now Ticket. DBA Support will send back any direct requests with instructions on how to submit a Service Now Ticket.
Update Process

- Once the IT Application Support group approves the request, the Service Now ticket must be assigned to Oracle SQL Update agent group
- DBA Support will review the approved SQL request and contact IT Applications Support with any questions.
- DBA Support will process the request in the production database.
- If the expected record count differs from the actual count, the DBA will rollback the change if so required and contact IT Applications Support for further action.
- Once the request is complete, DBA Support will close the ticket and Service Now will send an email indicating the request is complete.
- IT Applications Support will review the production environment to verify that the rows were correctly modified.
- The Requestor will review to ensure the request was executed as requested.

Periodic Review of Requests

- The CAB/eCAB will receive the weekly SQL changes report and will monitor the requests for proper authorization, and make appropriate recommendations for the review of requests which need to be further addressed.

Metrics and Reporting

The success and continuous improvement of the change management process will be measured based on the monthly performance of the following key indicators:

- The number of changes that have created a problem in the production environments
- The number of changes that had to be backed out
- ITCM average resolution time and cost
- The average ITCM response time by priority rating
- Planned versus actual ITCM implementation times
- The number of changes implemented by period
- The number of changes by type, by the requestor, by priority, by status
- The number of ITCMs in backlog sorted by status, requestor, and priority
- The number of emergency changes

Reports containing the above metrics will be generated by the change manager and distributed as requested all CAB members.
Appendix A: Change Management Process Workflow