

W H I T E P A P E R

Change Management

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Institute of Configuration
Management
Change Faster & Document Better

WHAT IS CHANGE MANAGEMENT?

The following definitions for change management were sifted out of search on the internet which resulted in thousands of hits. The following definitions were most comprehensive:

(1) *Change Management — the systematic management of a new business model integration into an organization and the ability to adapt this change into the organization so that the transformation enhances the organizational relationships with all its employees.* www.bitipe.com

(2) *Change Management — an organized, systematic application of the knowledge, tools and resources of change that provides organizations with a key process to achieve their business strategy.* www.lamarsh.com

(3) *Change Management — the policy, rules, procedures, information, activities, roles, authorization levels, and states relating to the creation, updates, approvals, tracking and archiving of change requests and problem reports; and generally includes management of the requirements and functional specifications.* www.scambyafora.com

(4) *Change management — a systematic approach to dealing with change, both from the perspective of an organization and on the individual level. For an organization, change management means defining and implementing procedures and/or technologies to deal with changes in the business environment and to profit from changing opportunities.* www.searchsbm.com

Another search was made to identify the most popular topics within the subject of *change management*. The following topics were repeated most often.

- *change sources*
- *organizational restructuring*
- *problem solving*
- *communication of change*
- *change planning*
- *change management team*
- *project planning*
- *change team leadership*
- *software tools*
- *management support*
- *employee resistance*
- *executive sponsorship*
- *middle management resistance*
- *configuration management*

The topics addressed most frequently deal with overcoming resistance to change. Communication of change is also a popular topic. Configuration management is one of the least popular.

Although change management is acknowledged to be an important discipline, it is not well defined. There is no standardized definition. Most descriptions are very high-level. How-to instructions are limited. There is no industry standard.

Perhaps this is because change management, by itself, has no meaning. It is not a stand-alone activity. Change management needs an anchor. The information and/or entity being changed represents the appropriate anchor. A combination of the two represents a process. Yet, *change process* is not one of the fourteen topics listed above.

EMPLOYEE RESISTANCE TO CHANGE

When a newly implemented or revised process fails to perform as planned, *employee resistance* is often cited as the reason. It is sometimes called *culture shock*. How to overcome resistance to change is a subject of great interest to many organizations. Techniques vary in accordance with the source of the resistance.

WORKERS

User involvement is commonly recommended as a way to overcome resistance from workers. Hands-on training is one form of user involvement. Users may be asked to review and validate the new procedures. Users may be asked to study the manuals provided by the supplier of a new system. Some may rely on first-line supervisors to provide the necessary guidance. Some may rely on a help desk. Some may expect users to help themselves.

Each approach may have its own deficiencies. User training may not be effective. Procedures, if written at all, may be inadequate. The supplier's manuals may be difficult to understand. The user's supervisor may not have sufficient time to provide guidance. A user may avoid asking for help since it might be interpreted as a sign of incompetence. Yet, a poorly performing process or system may still be attributed to worker resistance.

MIDDLE MANAGERS

Middle managers have a strong voice in how work is accomplished. Any change to how work is accomplished will definitely be noticed. In this case, strong executive support is most often recommended as an effective way to overcome resistance from middle managers. If top management support is sufficiently strong, middle managers are likely to push their own opinions aside and support it. If top management provides only lukewarm support, and if middle managers did not initiate the change, risk of failure is very high. Middle managers may not reveal their position until they know which side is going to win.

EMPLOYEE RESISTANCE — SYMPTOM OF A BIGGER PROBLEM

Employee resistance to a change is a symptom that the change process itself, is deficient. Perhaps the costs versus benefits were not properly defined and communicated. Perhaps the change was approved and those most directly impacted were not involved in the decision. Perhaps implementation of the change requires a greater effort than was expected. These are change process issues. Once resolved, employee resistance may not be an issue.

Focus on the change process may be lacking because every change is different. There is a perception that the process must be customized for each change. Most organizations, in fact, have multiple change processes which have minimum formality — which is believed to enhance speed and flexibility. This belief is substantiated by the more formal and rigid *engineering change process* which is known to be excessively slow and cumbersome.

AS-PLANNED AND AS-RELEASED BASELINES

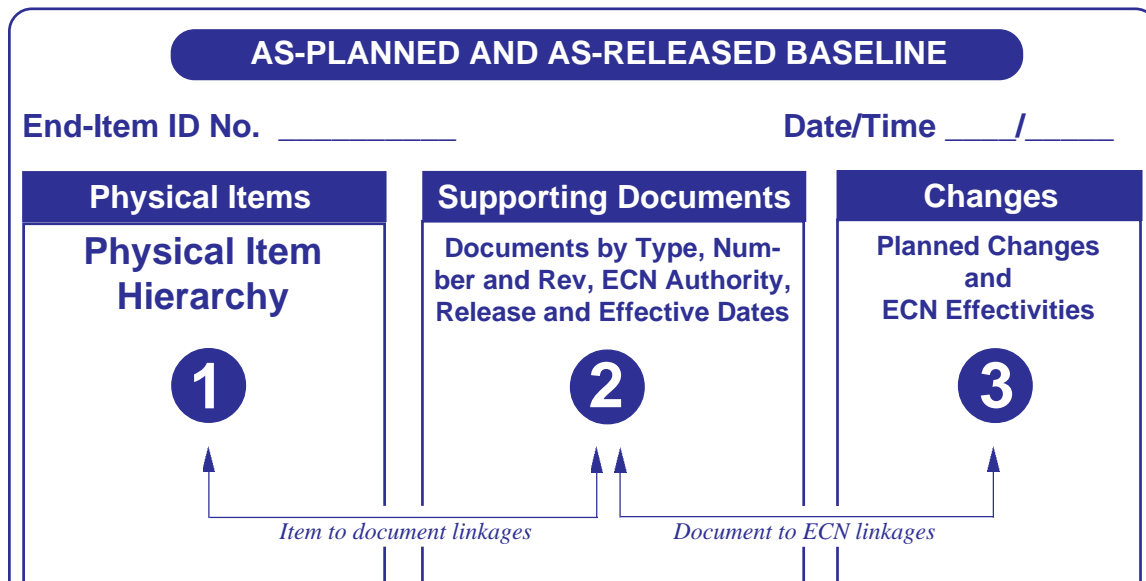
To improve change management is to improve the change process. Change process improvement, however, does not begin with the change process itself. It begins with how the information being changed is organized. For a change process to be fast and efficient, the information being changed must be properly identified, structured, linked and owned.

Each physical item and each of its supporting documents must be properly identified. Structure deals with physical item hierarchies and the parent-to-child relationships between individual items therein. For linkages, each physical item must be linked to its supporting documents and each version of each document must be linked to its ECN authority. Last, but not least, each document must be properly owned.

As-planned and as-released baselines are ideally suited for managing any type of configuration. Such baselines are always current and include visibility of planned changes. Each end-item configuration or model should have its own baseline. A recommended format, as shown below, has physical items on the left, supporting documents in the center, and planned changes on the right.

This standardized format can be used for any type of configuration in any life cycle phase. The baseline ratchets forward with each change (ECN). The ECN form contains a *physical item and document impact matrix* which is an exact representation of how the baseline is to be updated. All superseded and superseding items and documents are identified in the matrix. Superseded items and documents are moved into a history file. It is possible to retrieve any previous version of the baseline at any time.

Once the baselines are properly established, the process for updating the baselines can be addressed. The change process, itself, can be standardized.



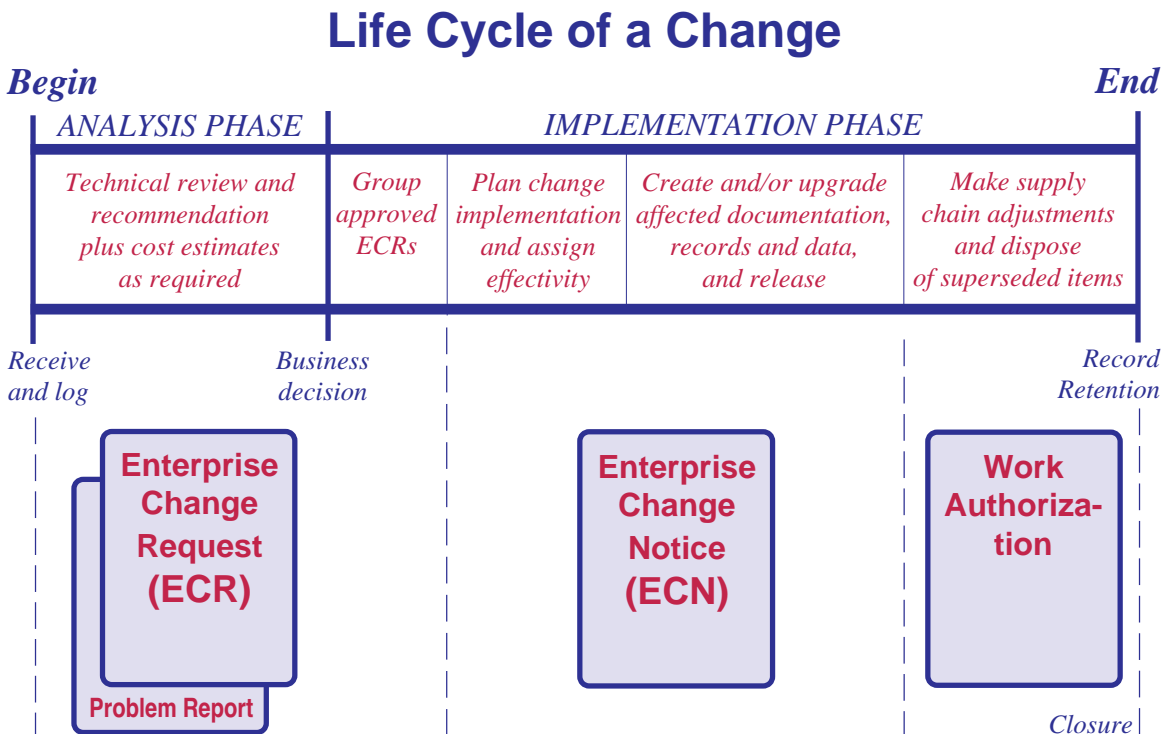
LIFE CYCLE OF A CHANGE

Anyone can request a change. Changes range from very simple to highly complex. Some are approved and others are disapproved. Some may impact a single document while others may impact an entire hierarchy of physical items and documents. Some will be assigned a high priority while others are assigned a low priority. Although these differences may be significant, they do not prevent the change process from being standardized.

Every change goes through an analysis phase and, if approved, an implementation phase. Forms are used as templates to guide each change through each phase. Forms commonly used in the analysis phase include problem reports and enterprise change requests (ECRs). A problem report is used when there is a problem and the solution is unknown. An ECR is used to provide a recommended solution and define its costs versus benefits.

Forms commonly used in the implementation phase include enterprise change notices (ECNs) and work authorizations. An ECN provides the authority to create and release new documents and/or upgrade documents already released. Work authorizations (purchase orders, shop orders, modification orders, test orders, and so on) provide the authority to perform work on physical items. All work is thereby authorized and controlled with forms.

Resources required to perform the analysis phase are typically a fraction of the costs required to implement an approved change. There are nevertheless many opportunities to minimize the implementation costs. Changes that impact one or more of the same documents which can share the same effectivity, should be combined and implemented as one change.



ONE COMMON CHANGE PROCESS

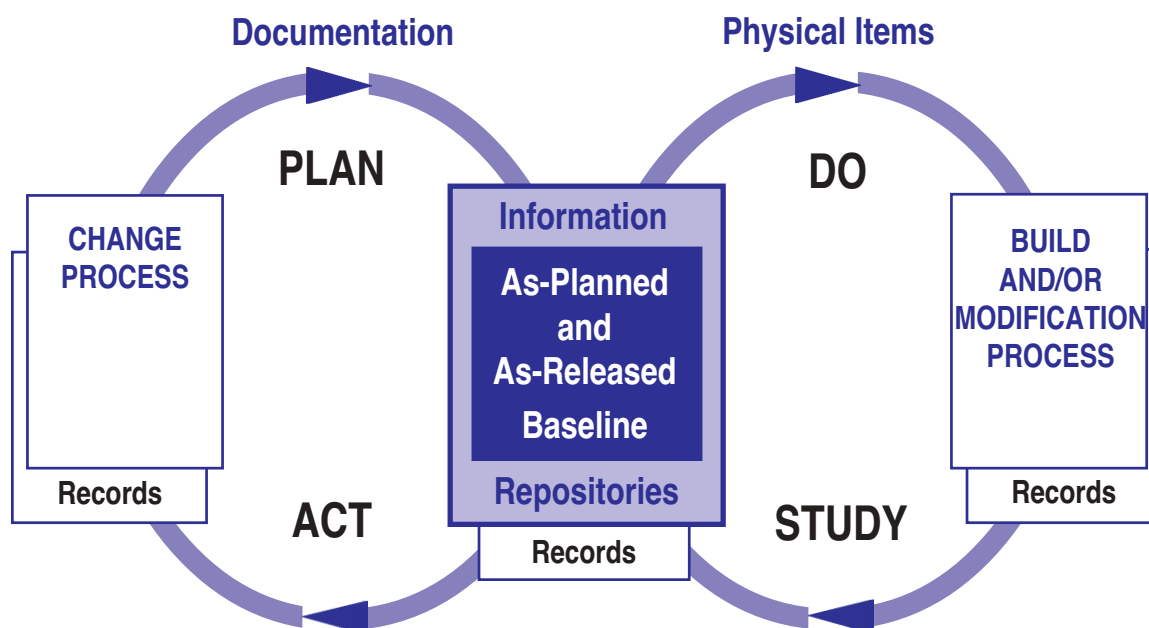
As-planned and as-released baselines should be closely coupled with a change process as shown below. The change process should be closed-loop and self-correcting. Each change that enters the process is tracked and remains active until it is satisfactorily completed.

The change process serves to upgrade the information contained in the baseline. Physical items are built and/or modified in a separate process. Each physical item must conform to its documented requirements as specified in the baseline.

Ability to keep physical items and their supporting documents properly synchronized is often a challenge. It is also a change process issue. One solution is to ensure that documents lead and physical items conform. This means that each document must be released before it can be used.

Many organizations are unable to endorse this rule because their change processes are disjointed and/or too slow. Rather than wait for needed documents to be updated and released, they proceed to change the physical items and hope the documents will catch up later. It is unlikely that the supporting documents will ever catch up — for the same reasons they were not updated initially.

The ideal change process is that which can accommodate change and keep the associated information clear, concise and valid. An organization that lacks such a process has no choice but to operate in a *corrective action mode*. Those who operate in this mode spend over 40 percent of their resources on intervention. The only way to escape the corrective action mode is to streamline the change process.



ROLE OF CHANGE MANAGEMENT REDEFINED

The role of change management is best explained by describing its correlation with configuration management. Configuration management serves to manage configurations by managing the information about them, including changes. The ideal configuration management process is able to accommodate change and keep the associated information clear, concise and valid. It serves to keep physical items and documents fully synchronized and ensure that physical items conform to requirements. Change management, requirements management, release management, data management, records management, library management and document control, are all necessary for robust configuration management.

LOWEST COMMON DENOMINATORS

The lowest common denominators in the configuration/change management processes are physical items, documents, forms and records. They represent the ideal handles for managing information. They are the ideal handles for building baselines and processing changes.

ENABLING SOFTWARE TOOLS

Optimizing processes is the most important activity to accomplish before you automate anything with tools, especially PLM tools. There is a close alignment between the CMII methodology and the functionality that PLM tools are capable of providing. The appropriate PLM tool is ideal for enabling CMII.

PLM tools are ideal for linking physical items to physical items, physical items to documents, documents to documents and documents to forms. They are ideal for managing work flows associated with changes and updates to the baselines. They can be interfaced with project management tools and other types of scheduling, capacity planning and priority control tools.

The appropriate PLM tool can enable the optimized change process across multiple disciplines (the entire product life cycle) and locations (globally if needed). The gains in change process speed and efficiency also results in reduced resistance to change. It is now possible for the entire organization to standardize on one common change process. A PLM tool that enables complex configuration management and automated CMII-based change management processes is a critical component of leading companies today.

About the author: Vince Guess is President of the Institute of Configuration Management and Director of the university-sponsored CMII certification program. Over 5,000 professionals from over 30 countries now hold CMII certification. ICM is headquartered in Scottsdale, Arizona.

About UGS: UGS, with 41,000 clients and 2.6 million seats of technology operating in the market, is a leader in product lifecycle management (PLM). The company works collaboratively with its clients to create solutions enabling them to transform their process of innovation.



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