

W H I T E P A P E R

***CMII — Model for
Configuration Management
(Rev B)***

SUMMARY —The CMII model provides a breakthrough CM process that accommodates change and keeps requirements clear, concise and valid.

This breakthrough process provides the needed business process infrastructure that is missing in other business process improvement initiatives.

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BUSINESS PROCESS INFRASTRUCTURE

Configuration management is a multifaceted process with many elements. Those elements are often fragmented and may exist under various names.

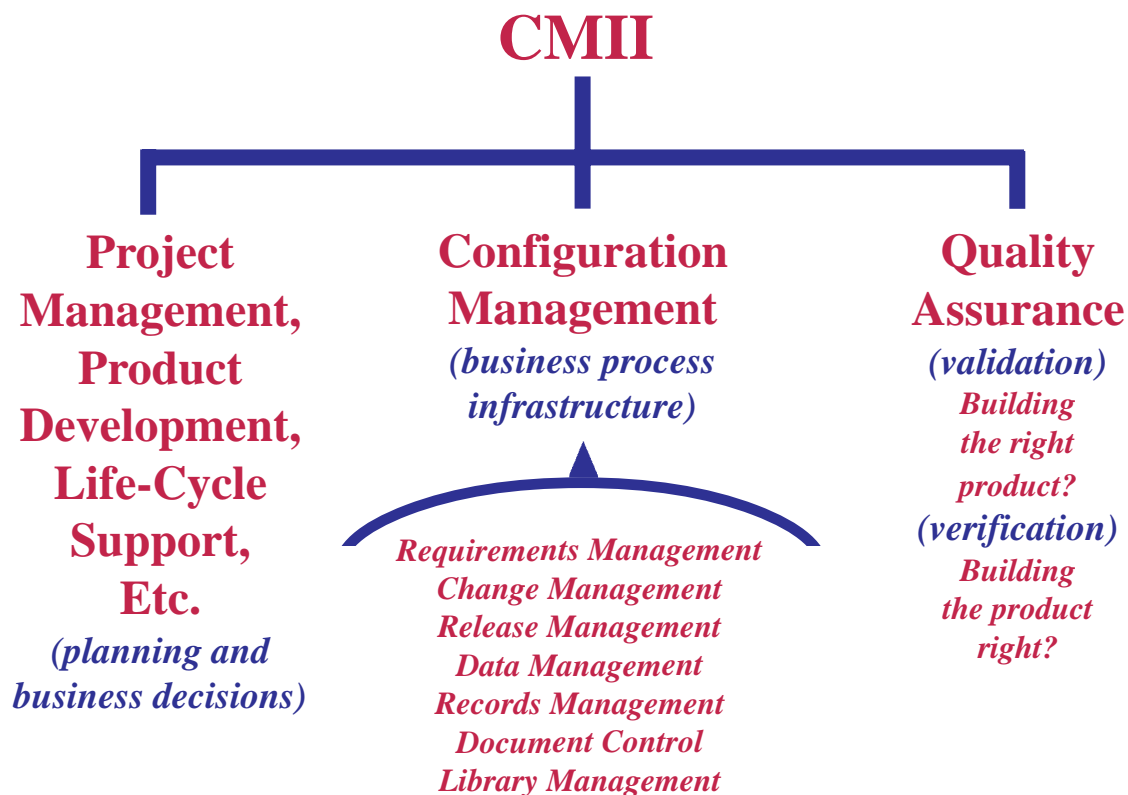
Each element is important in its own way. With CMII, they are brought together under one umbrella and integrated into one cohesive unit.

Overall effectiveness, before and after integration, is measured by the ability to accommodate change and keep released information clear, concise and valid.

As information integrity improves, the need for corrective action declines. As corrective action declines, real improvements become increasingly robust.

In other words, as the need for fire-fighting is reduced, more resources can focus on real improvements (new products, better processes, and so on).

To "reinvent CM" is to provide a better *business process infrastructure* and thereby enable other core business processes to be more reliable and efficient.



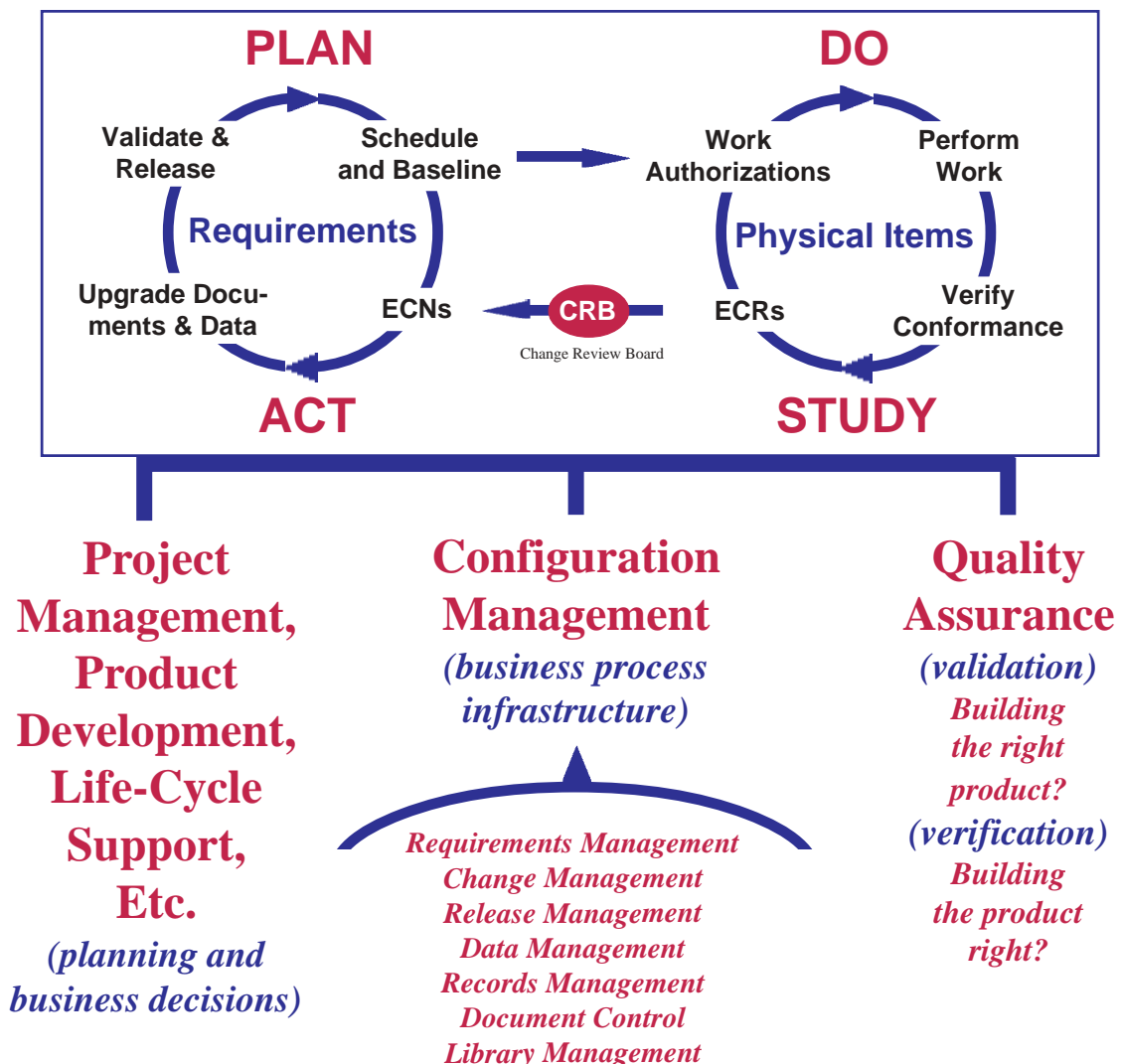
PROJECT MANAGEMENT: TWO CYCLES, NOT ONE

The project management cycle (plan, do, study and act) is ideal for demonstrating the proper role of CM and how certain key elements are integrated.

First, it must be recognized that project management is two cycles, not one. A requirements cycle coexists with a physical item cycle.

The physical item cycle is driven by the requirements cycle. Quality assurance activities (validation and verification) have their proper place in each cycle.

Requirements must lead and physical items must conform. A fast and efficient change process is a prerequisite.



BASELINE AND LOWEST COMMON DENOMINATORS

The scope of CM, per CMII, includes any information that could impact safety, quality, schedule, cost, profit or the environment.

A change process cannot be fast and efficient if the information being changed is not properly identified, structured, linked and owned.

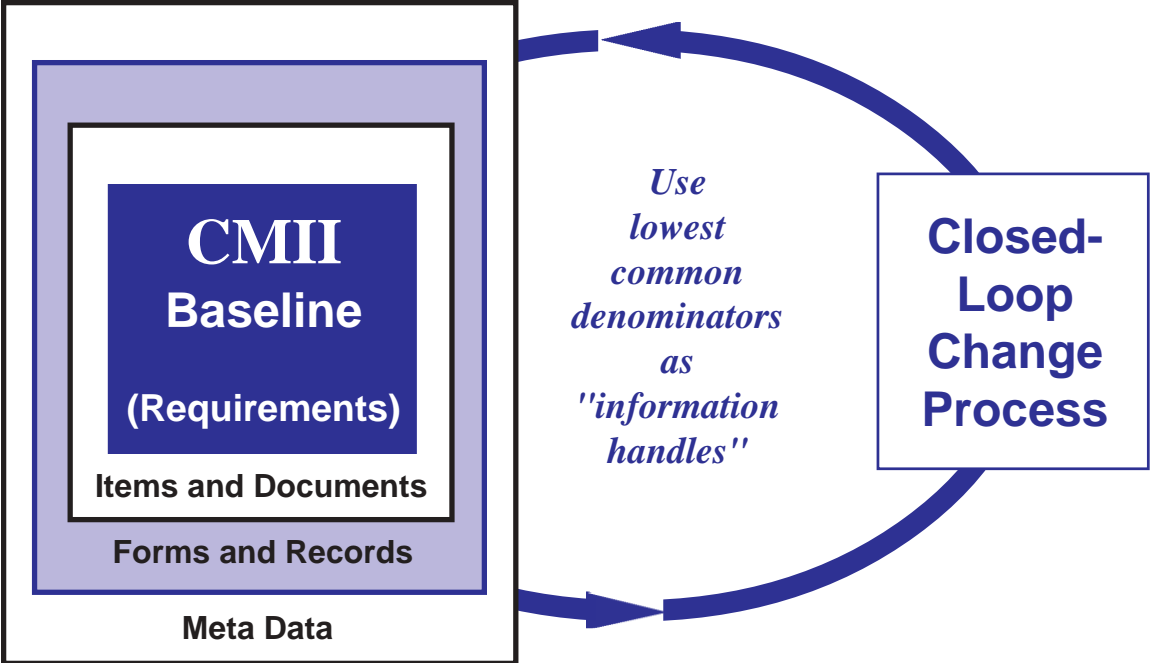
Structures and linkages include how end-items are subdivided into hierarchies of subordinate-level *make-or-buy* and *repair-or-replace* items.

It includes how each item at each level is linked to its own unique set of supporting documentation and how each document is linked to its owners.

As-planned and as-released (or CMII) baselines are ideal for displaying physical item hierarchies, supporting documents and associated changes.

Physical items, documents, forms and records are the appropriate *handles* for structuring information and processing changes.

Forms are used to authorize and provide positive control of all work. Completed forms are retained as records of work accomplished.



THE "V" MODEL FOR DEVELOPMENT

Development, per the CMII model, is an 8-step process. Each step must be taken in proper sequence and brought to proper closure.

Steps 1 and 2 serve to define the end-item application requirements and basis for detailed design (or design basis).

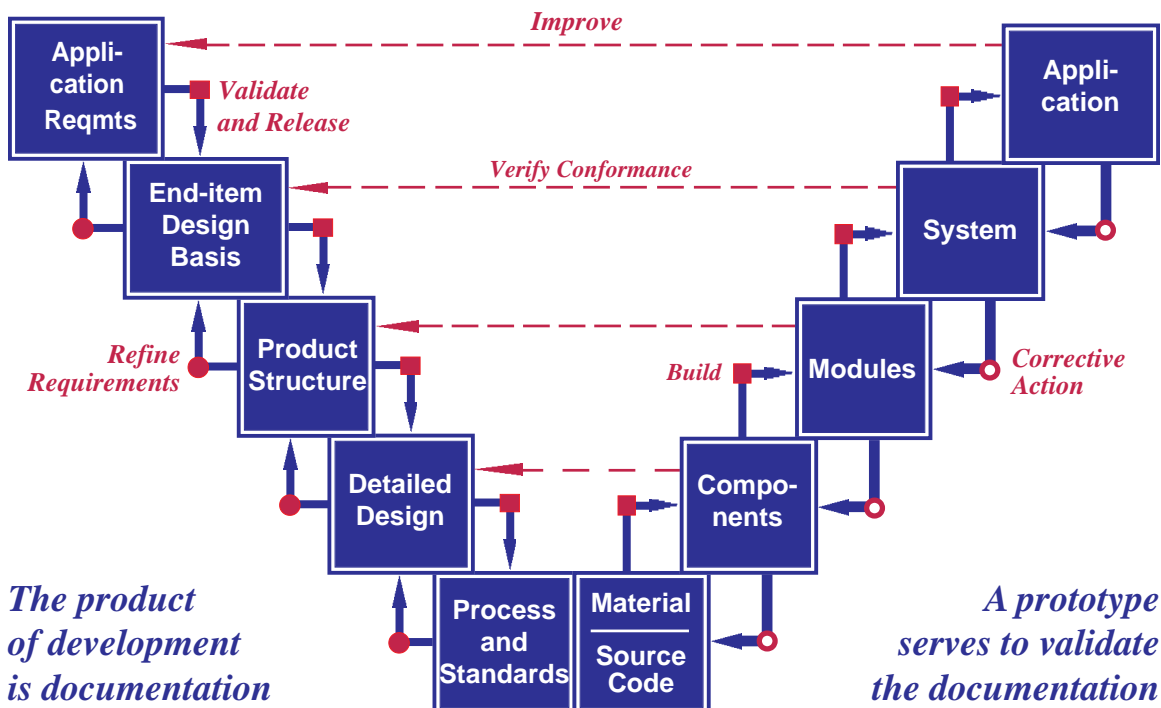
Steps 1 and 2, in other words, serve to create the high-level plan.

Steps 3, 4 and 5 extend the high-level plan (design basis) into a detailed plan. Steps 6, 7 and 8 serve to execute the detailed plan.

The importance of steps 1 and 2 cannot be overly emphasized. Those who use this 8-step process will find the following statistics to be accurate:

Steps 1 and 2 consume less than 6% of the total development costs and also lock in over 90% of the total life cycle costs.

Any shortcuts in the first two steps lead to slipped schedules and budget overruns during development, and inflated support costs thereafter.



SPECIFIC OWNERSHIP BY CREATORS AND USERS

Each physical item has its own unique set of supporting documentation. Changes are processed against documents. Physical items must conform.

The physical and functional characteristics of a physical item are specified in one or more design-oriented documents.

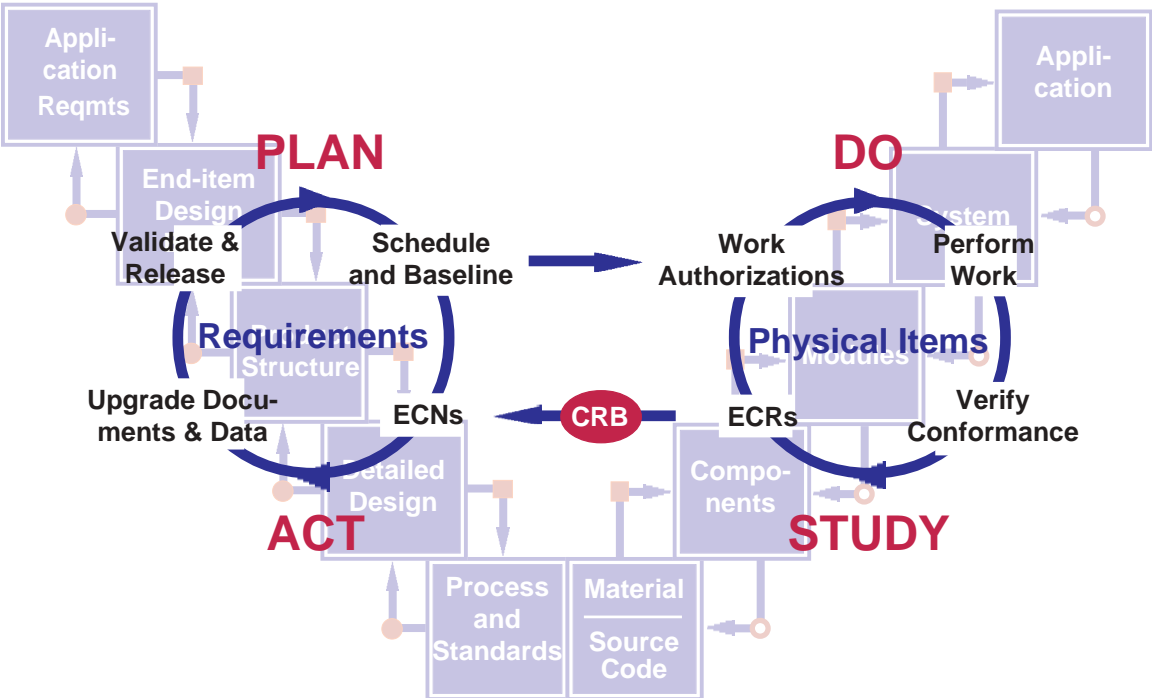
The materials (or source code files) required to produce that same physical item are identified its bill of material.

The processes and required tools used to produce, operate and/or maintain that same item are described one or more process-oriented documents.

Each document is co-owned by its creator (or author) and one or more designated users. No document is owned by a single individual.

The co-owners of each document are responsible for its integrity and have the authority to make changes as needed (within the rules of the CM process).

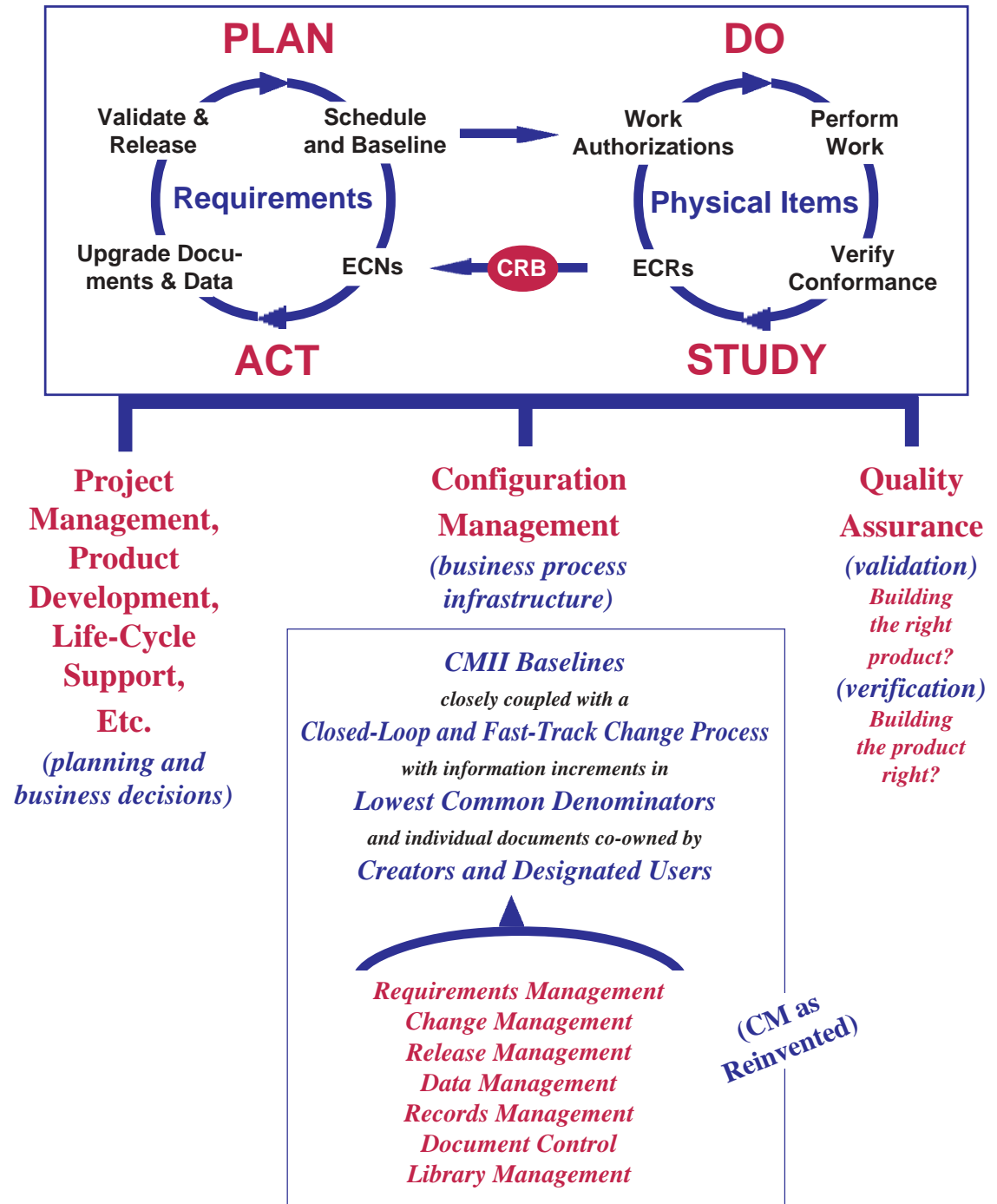
Such co-ownership is a prerequisite for achieving a fast-track change process — and a development process that is truly fast and efficient.



CMII FOR BUSINESS PROCESS INFRASTRUCTURE

The power of CMII is derived from integrating the CM elements in a way that best accommodates change and keeps requirements clear, concise and valid.

An organization is as strong as its business process infrastructure is sound.





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