

Course X'

# CMII Awareness

## Institute of Configuration Management



The University  
of Tennessee  
*College of Business  
Administration*

*Course X': CMII Awareness*

**Revision Record**

<i>Revision</i>	<b>K'</b>	<b>L'</b>	<b>M'</b>	<b>N'</b>	<b>O'</b>	<b>P'</b>	<b>Q'</b>	<b>R'</b>
<i>Released by</i>								<b>WWG</b>
<i>Release date</i>	<b>01/21/00</b>	<b>03/01/01</b>	<b>08/21/01</b>	<b>05/24/02</b>	<b>09/12/02</b>	<b>11/02/02</b>	<b>04/04/03</b>	<b>03/10/04</b>
<i>Effective date</i>	<b>01/24/00</b>	<b>03/05/01</b>	<b>08/28/01</b>	<b>05/31/02</b>	<b>09/23/02</b>	<b>11/13/02</b>	<b>04/22/03</b>	<b>03/23/04</b>
<i>Authority</i>	<b>047-10</b>	<b>049-10</b>	<b>050-10</b>	<b>051-10</b>	<b>052-10</b>	<b>053-10</b>	<b>054-10</b>	<b>055-10</b>
<i>Fast track</i>	<b>no</b>	<b>yes</b>	<b>yes</b>	<b>no</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>
<i>Rev. History</i>	<b>copy</b>	<b>copy</b>	<b>copy</b>	<b>copy</b>	<b>copy</b>	<b>copy</b>	<b>copy</b>	<b>copy</b>

Rev **R'** APPROVED BY

Creator **Vince Guess**

User (1) **Ken Black**

User (2) **Leo Clark**

User (3) **Steve Easterbrook**

User (4) **Eric Hales**

User (5) **Rick St. Germain**

User (6) **Ray Wozny**

User (7) \_\_\_\_\_

© INSTITUTE OF CONFIGURATION MANAGEMENT, Inc. 1986 - 2004. All rights reserved. No part of this publication may be reproduced in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of ICM.

# Introduction

*With CMII, the following configuration management related activities are brought together and integrated into one cohesive unit:*

- *requirements management,*
- *change management,*
- *release management,*
- *data management,*
- *records management,*
- *document control and*
- *library management.*

# CM-Related Activities

## *Requirements Management*

*With no requirements, there is nothing to do.*

## *Change Management*

*The backbone of requirements management.*

## *Release Management*

*Requirements are released and re-released when changed.*

## *Data Management*

*Items, documents, forms and records have associated data.*

## *Records Management*

*Appropriate records are a by-product of the process.*

## *Document Control*

*Keeps documented requirements secure and accessible.*

## *Library Management*

*Keeps other knowledge assets and artifacts secure and accessible.*

# CMII

**Project  
Management,  
Product  
Life-Cycle,  
Asset  
Management**  
*(planning and  
business decisions)*

**Configuration  
Management**  
*(business process  
infrastructure)*

*Requirements Management  
Change Management  
Release Management  
Data Management  
Records Management  
Document Control  
Library Management*

**Quality  
Assurance,  
Process  
Audits**  
*(validation and  
verification)*

**Missing link prior to CMII — Business Process Infrastructure**

# Contents

*Design Basis for CMII . . . . . (p 6-12)*

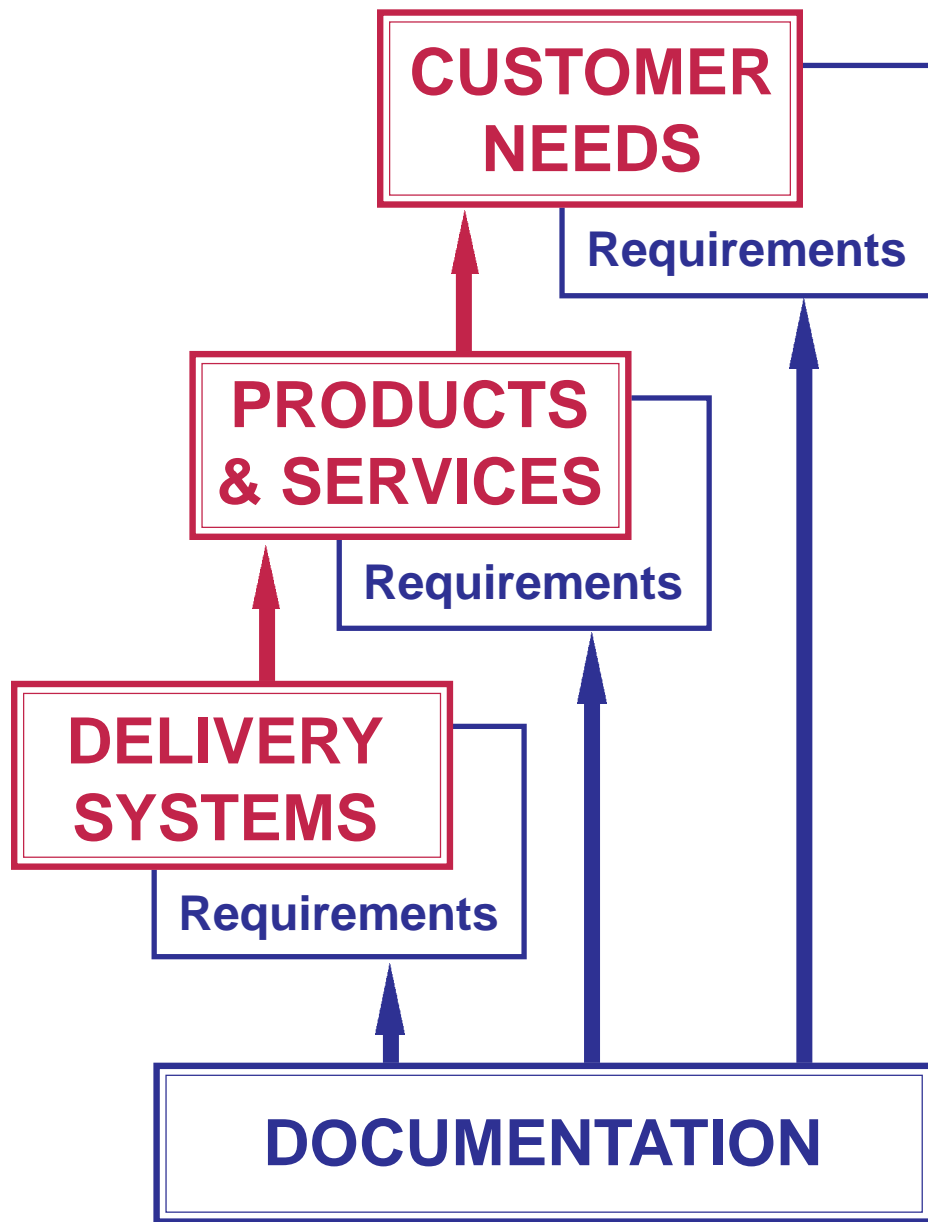
*CMII Baselines . . . . . (p 13-16)*

*Closed-Loop Change Process . . . . . (p 17-19)*

*Lowest Common Denominators . . . . . (p 20-22)*

*Positive Control and Ownership . . . . . (p 23-25)*

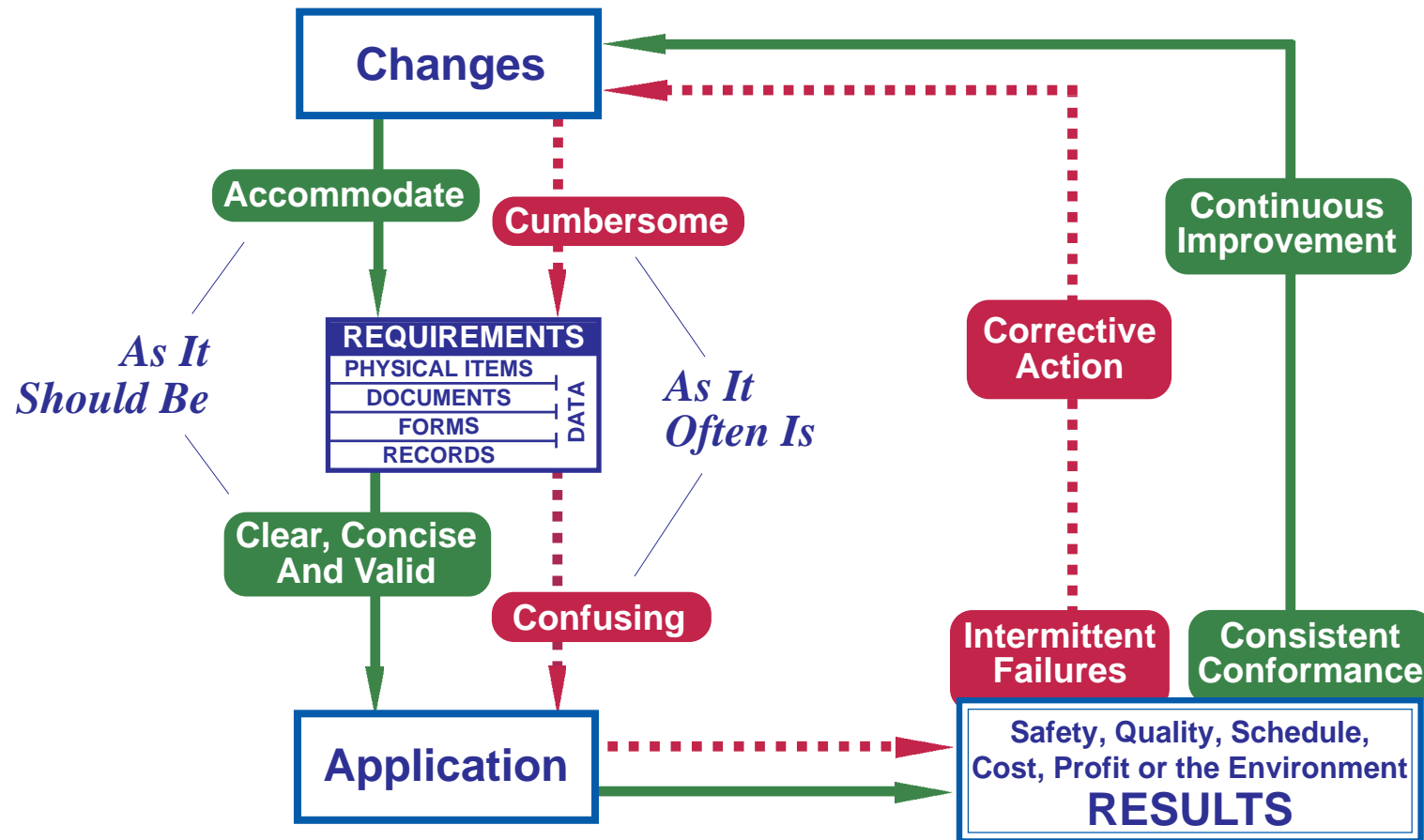
*CMII Model and Enabling Tools . . . . . (p 26-30)*



**CMII Rule:**  
*"A Requirement  
Is Not A  
Requirement  
Until It Is  
Documented, Vali-  
dated and Released."*

**ISO 9000  
Quality Standard:**  
*"Document  
What You Do;  
Do What You  
Document."*

# The Problem: Corrective Action

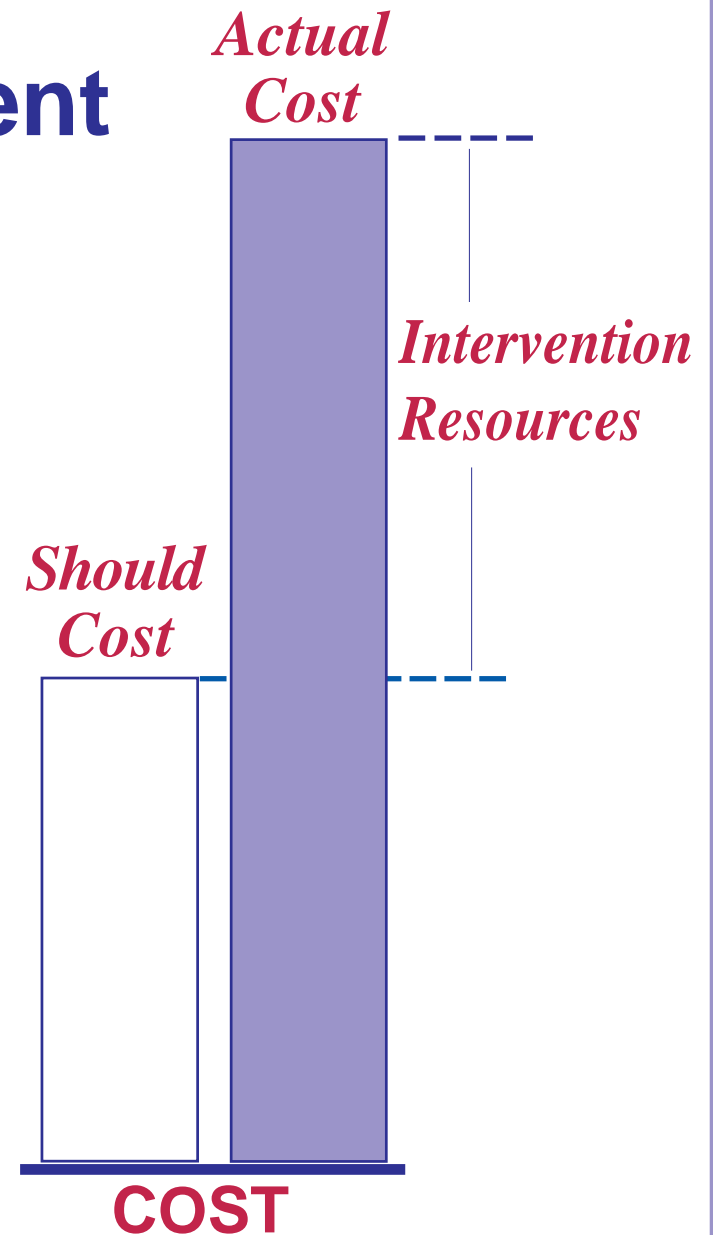
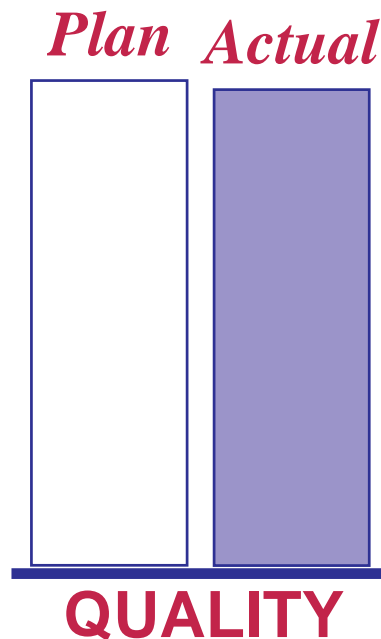
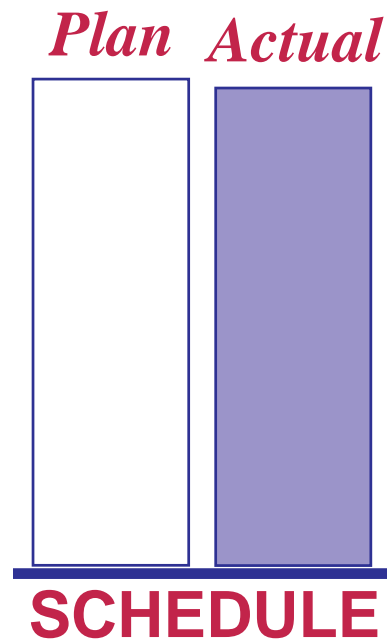


# Causes for Corrective Action

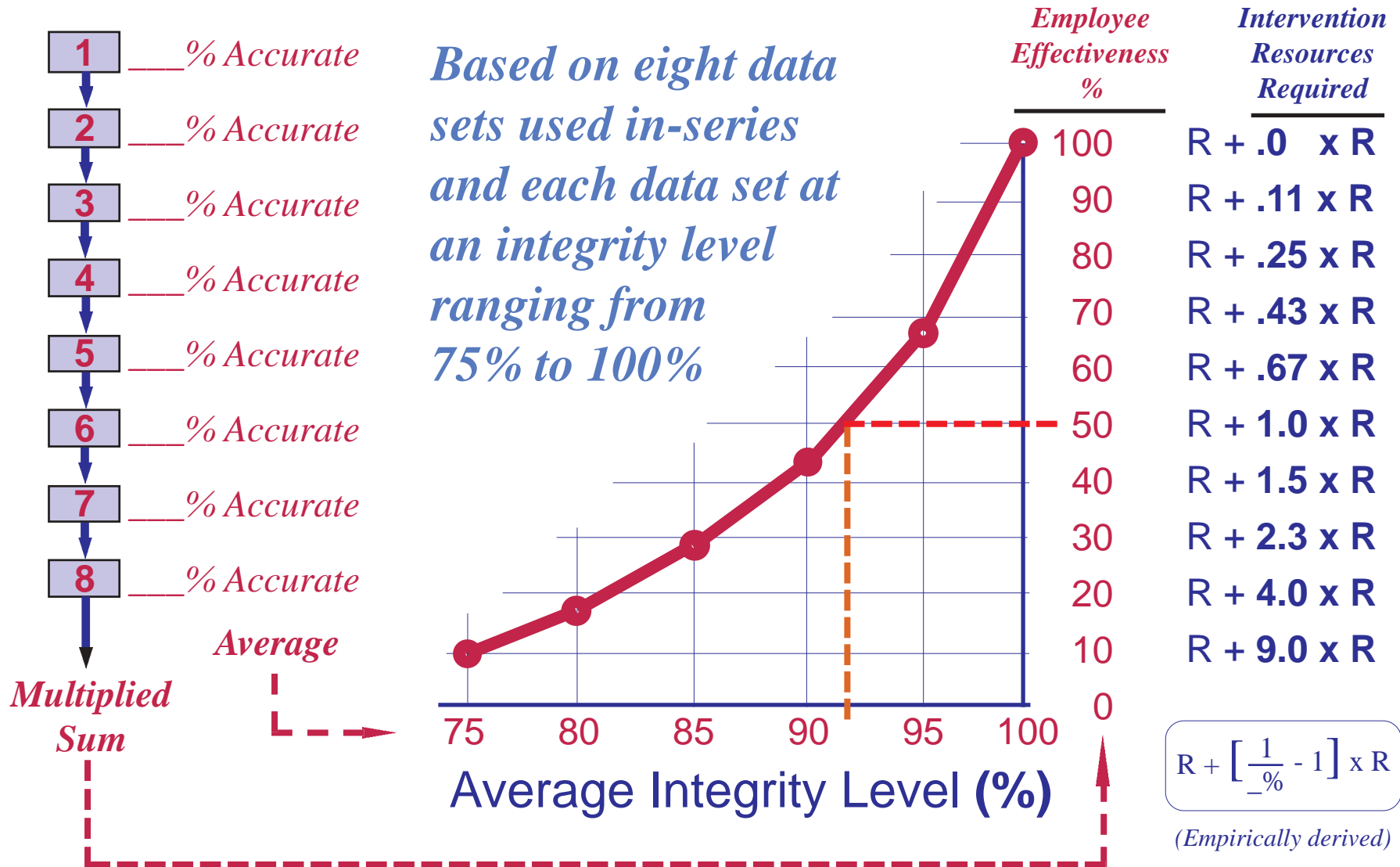
	Situation 1	Situation 2	Situation 3	Situation 4
Negotiated and Documented Requirements	Clear, Concise and Valid	Clear, Concise and Valid	Subject to Interpretation	Subject to Interpretation
Conformance Measurements	Easily Applied and Concise	Difficult to Apply and Subject to Interpretation	Easily Applied and Concise	Difficult to Apply and Subject to Interpretation
Results	Consistent Conformance	Intermittent Errors	Intermittent Errors	Work Harder Just to Stay Even (Chaos)
Change Purpose	Continuous Improvement	Corrective Action	Corrective Action	Informal and Work Around

# Potential for Improvement

*Intervention Resources are added to take corrective action and rescue quality, schedule, and so on.*



# Intervention; Function of Data Integrity

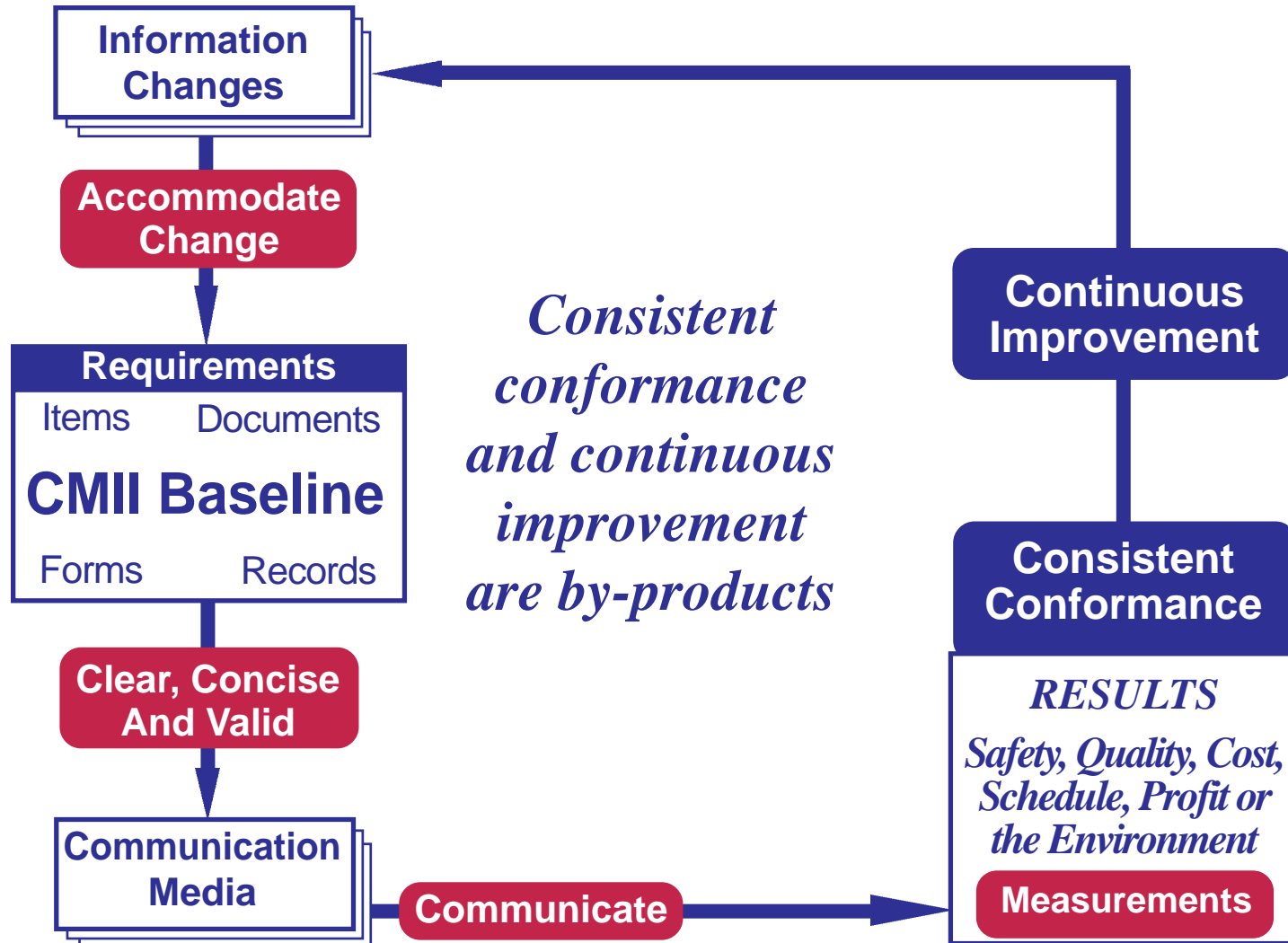


## Scope and Emphasis of CMII

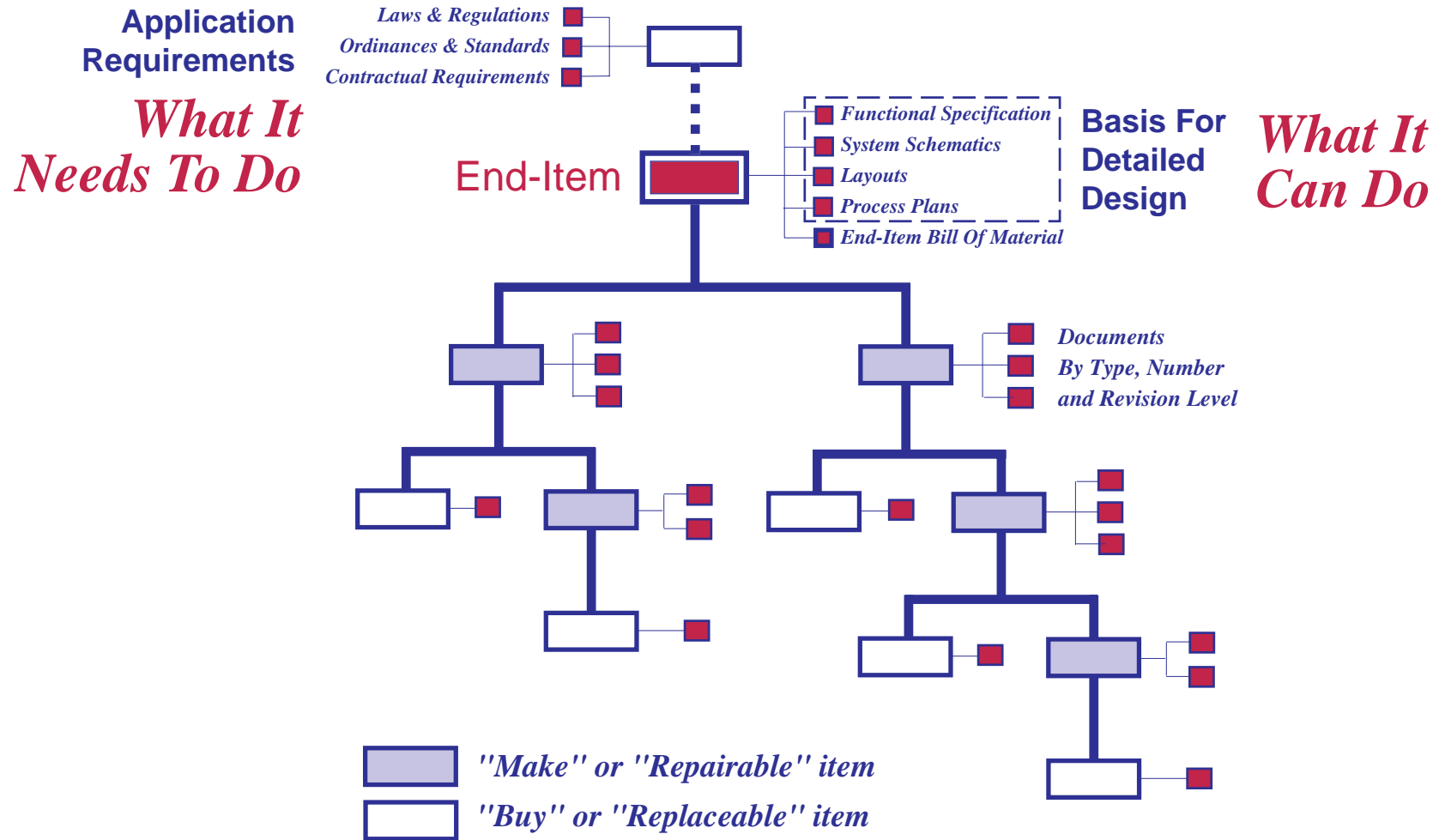
*Scope includes all information that could impact safety, quality, schedule, cost, profit or the environment.*

*Emphasis on ability to (1) accommodate change, (2) reuse standards and best practices, (3) keep requirements remain clear, concise and valid, (4) communicate (1), (2) and (3) to users promptly and precisely and (5) ensure results conform to requirements in each case.*

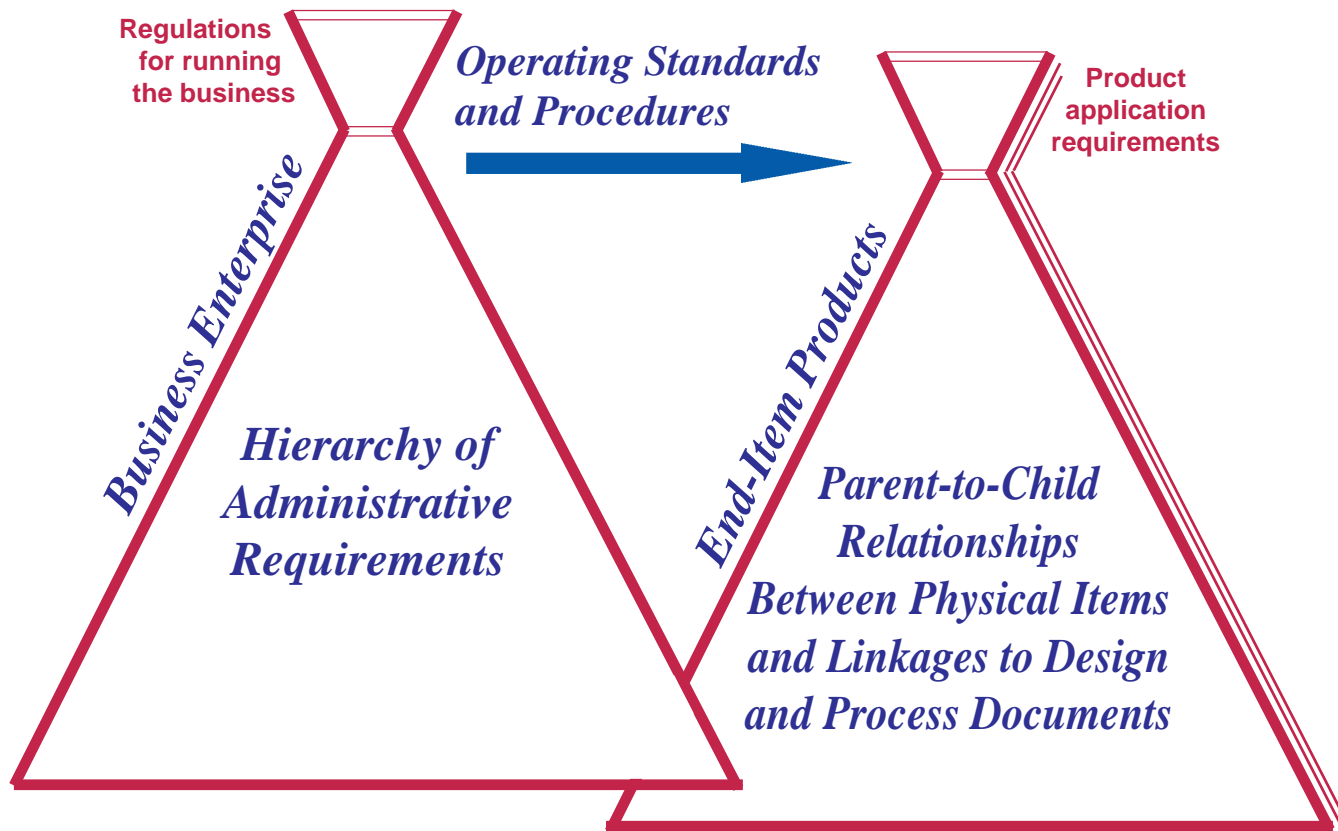
# Design Basis for CMII



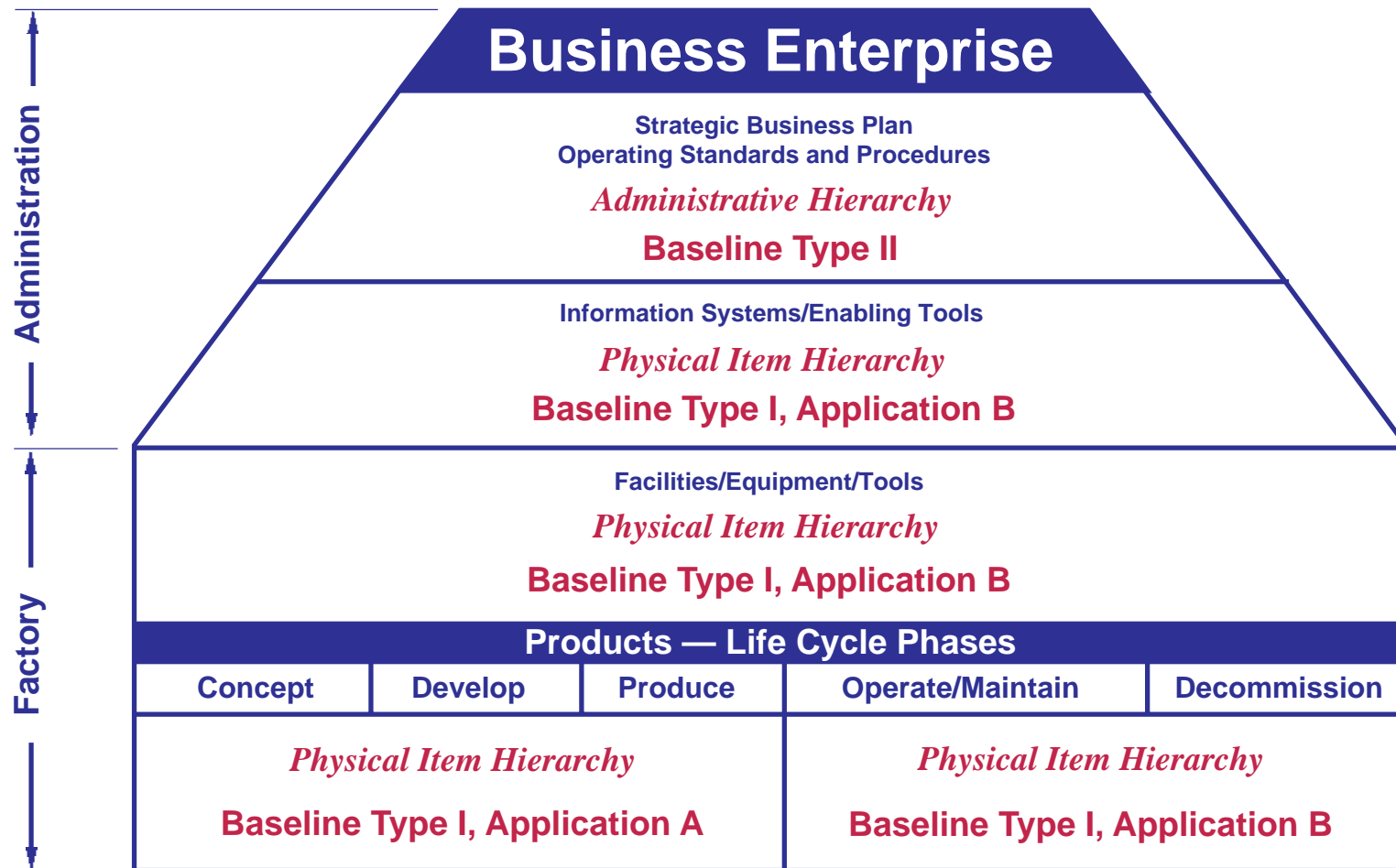
# A Physical Item Hierarchy



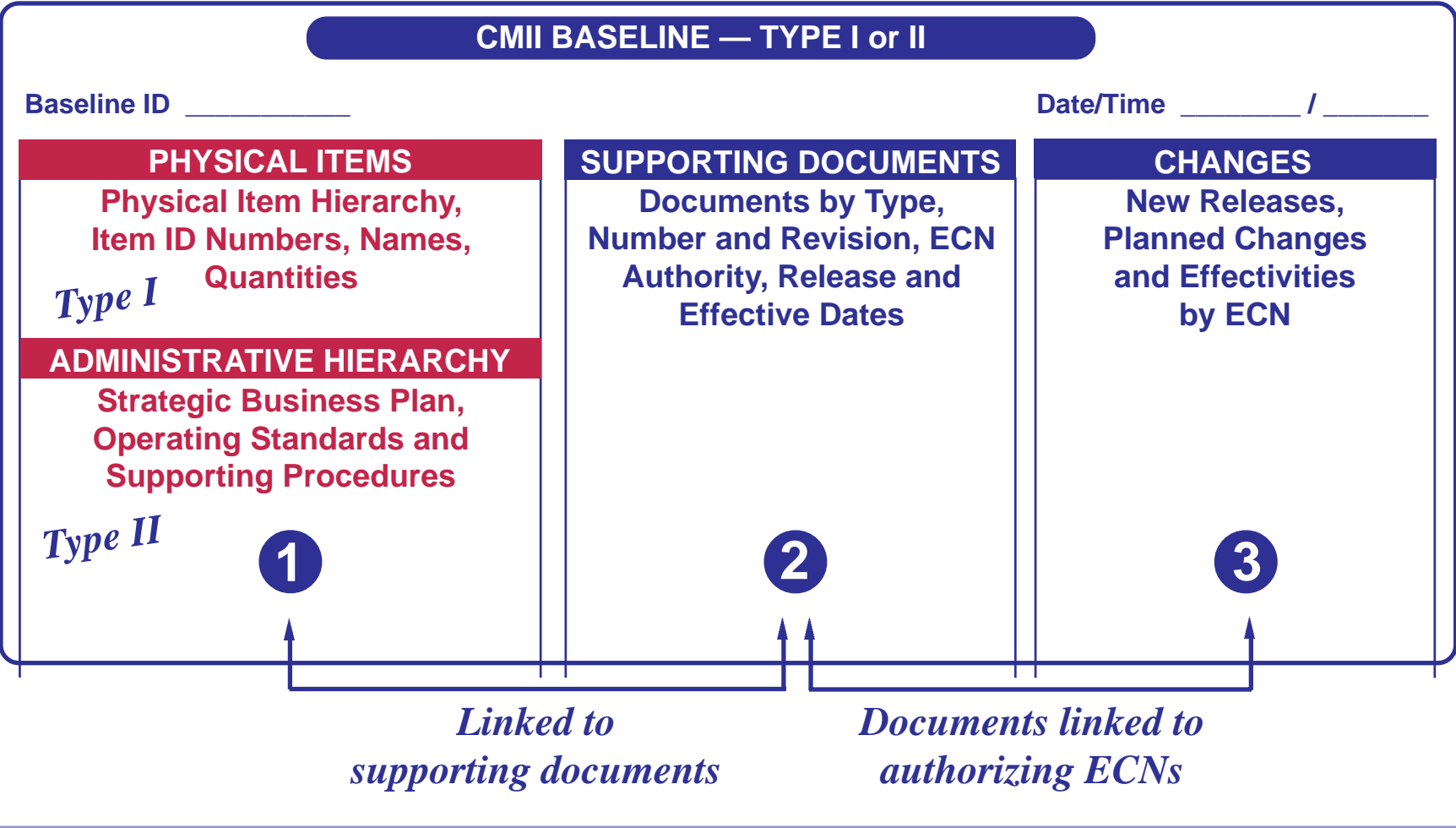
# An Administrative Hierarchy



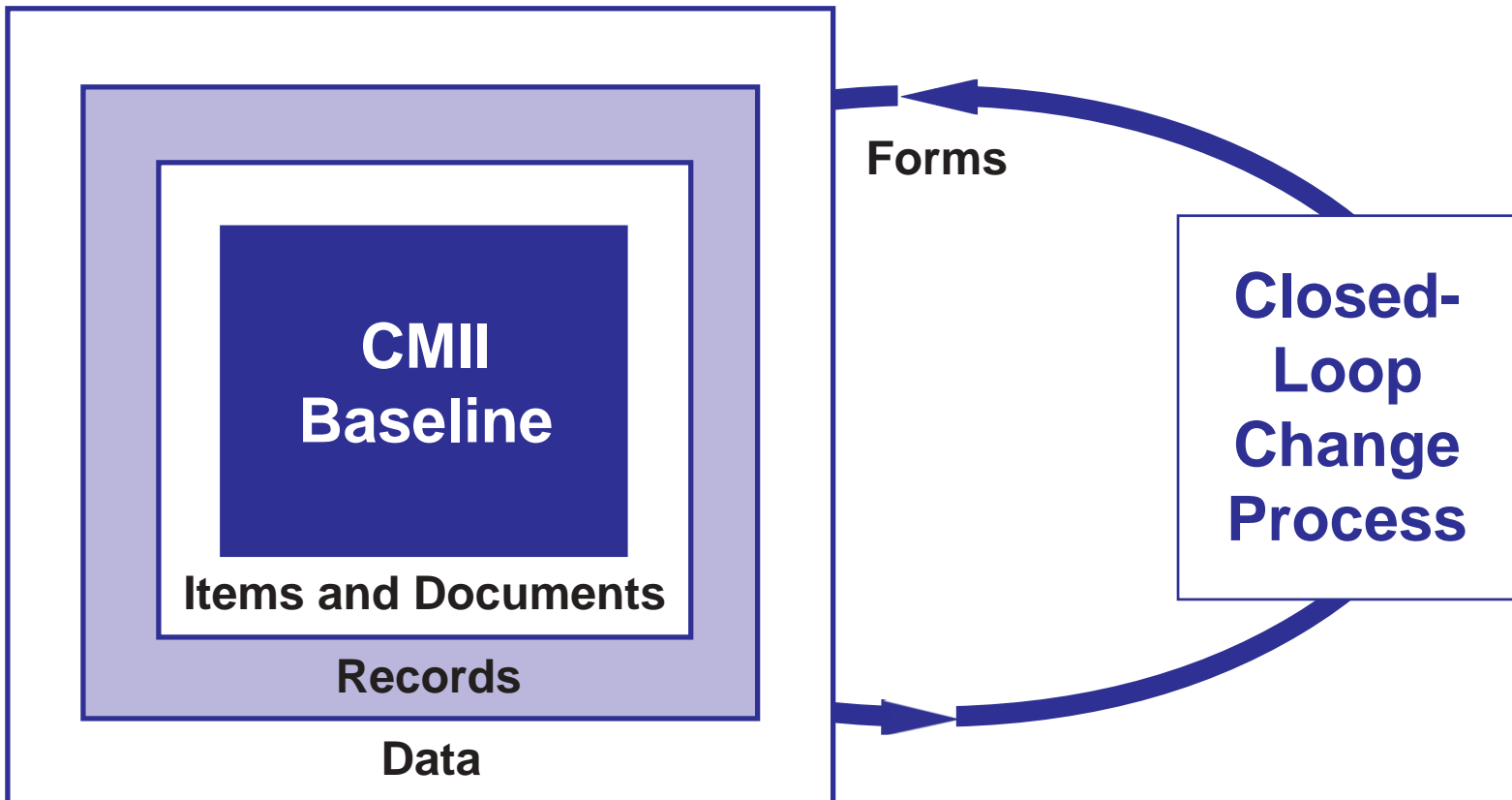
# CMII Baselines and Applications



# CMII BASELINE — Type I or II



# Closed-Loop Change Process



*Baselines closely coupled with the change process.*

# Life Cycle of a Change

*Begin*

*End*

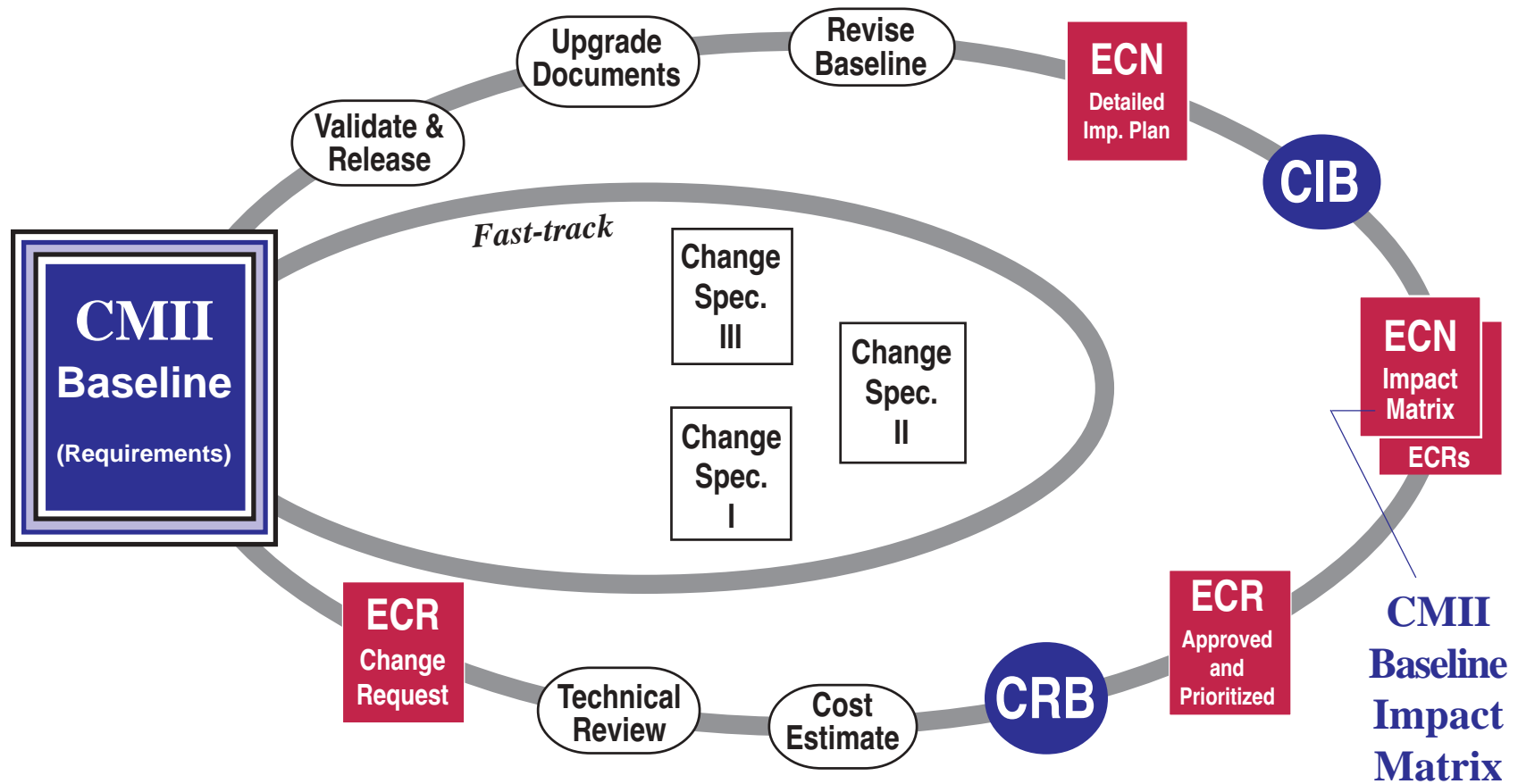
<b>ANALYSIS PHASE</b>	<b>IMPLEMENTATION PHASE</b>			
<p>Technical review, recommendation and cost estimates</p>	<p>Implementation Grouping</p>	<p>Plan implementation and assign effectivity</p>	<p>Create and/or upgrade requirements</p>	<p>Build products per new requirements</p>
<p>Log and assign control number</p>		<p>Traceability Records</p>		

**Form A**

**Form B**

**Form C**

# Closed-Loop Change Process



# Lowest Common Denominators

- **Physical items** \_\_\_\_\_
  - **Documents** \_\_\_\_\_
  - **Forms** \_\_\_\_\_
  - **Records** \_\_\_\_\_
- and  
associated  
data**

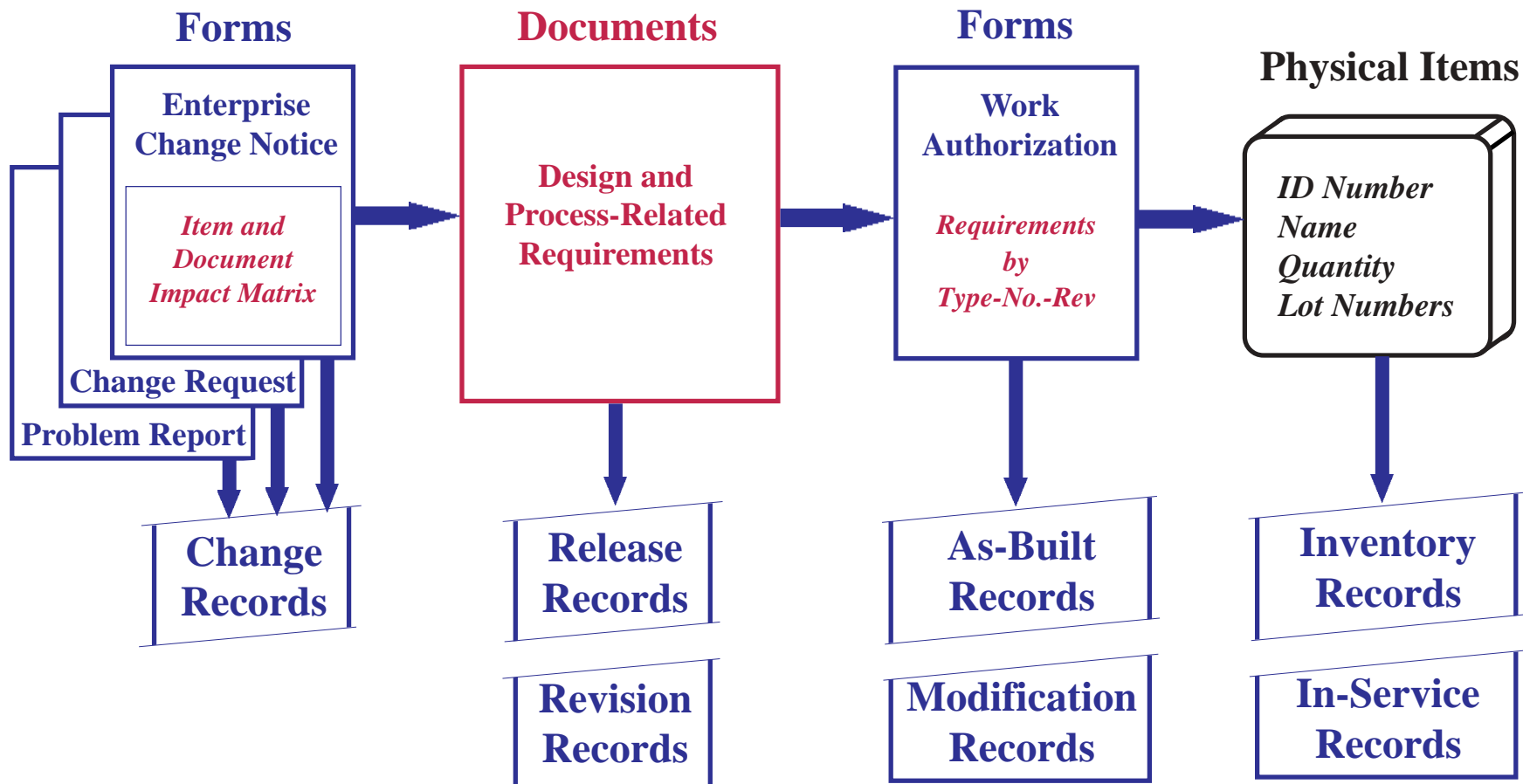
*Ideal "handles" for managing hierarchies of information and accommodating changes.*

# Forms

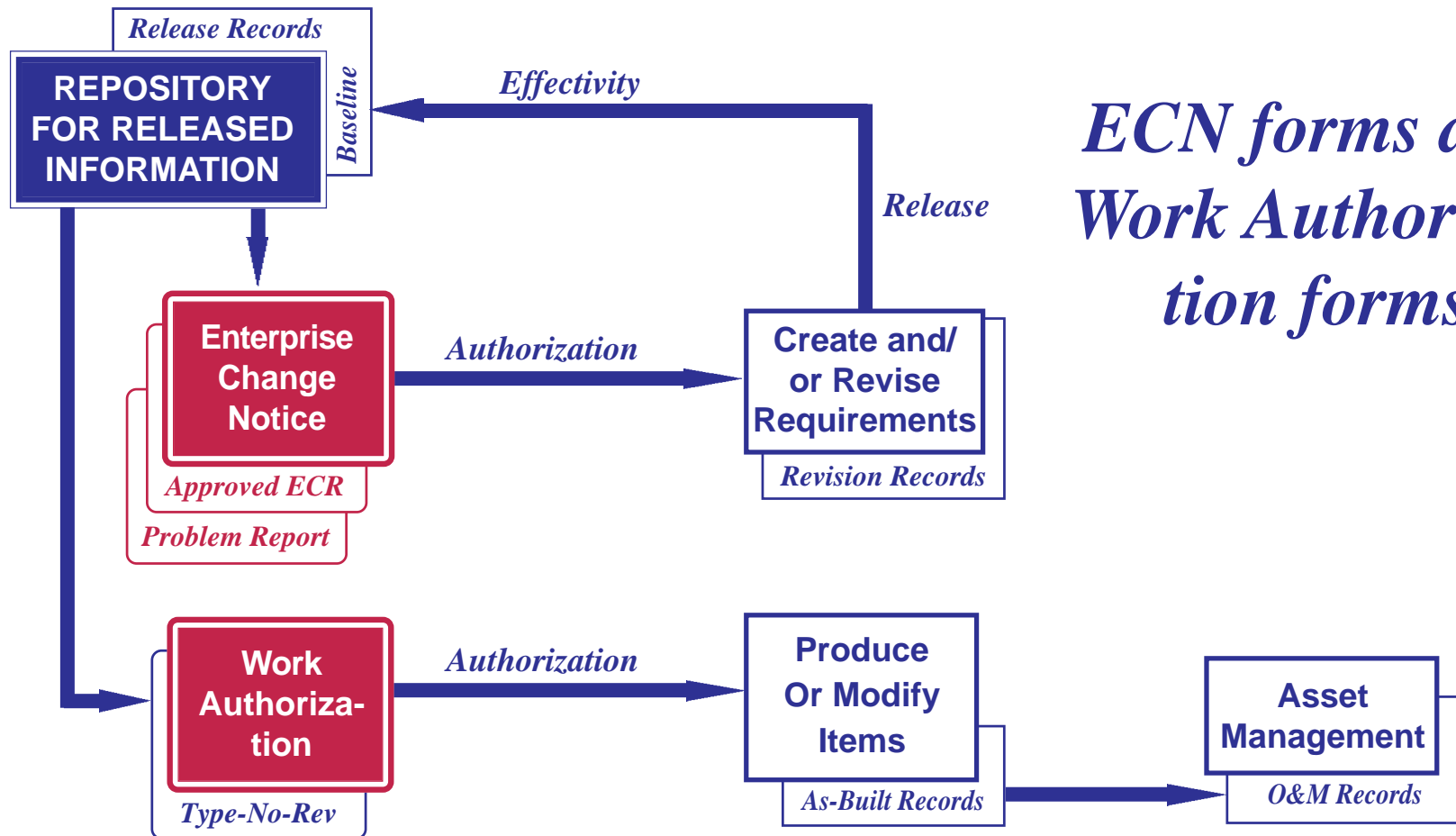
- **Problem Report**
- **Enterprise Change Request (ECR)**
- **Enterprise Change Notice (ECN)**
- **Document Change Record (DCR)**
- **Work Authorization** (Purchase Order, Shop Order, etc)
- **Deviation or Waiver**

*All work is authorized and positively controlled with forms.*

# Items, Documents, Forms and Records



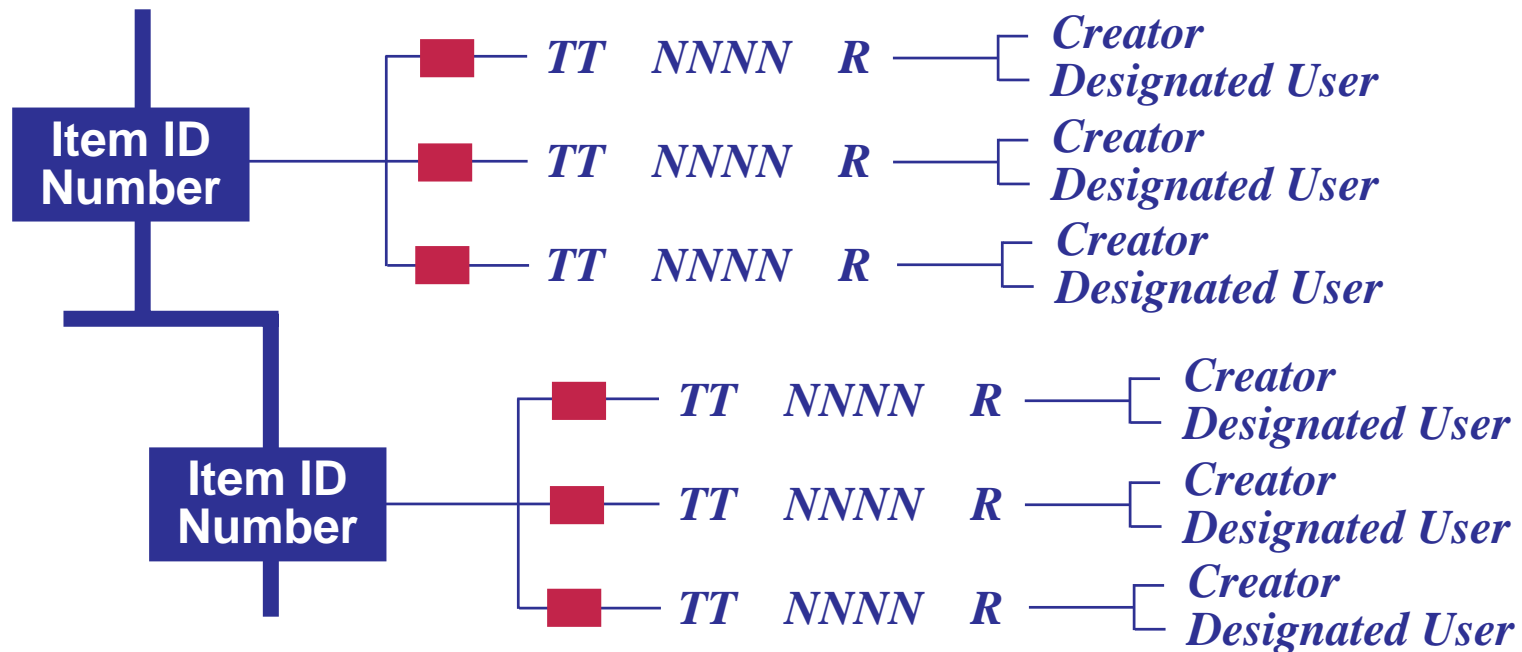
# Positive Control of All Work



# Proper Ownership of Each Document

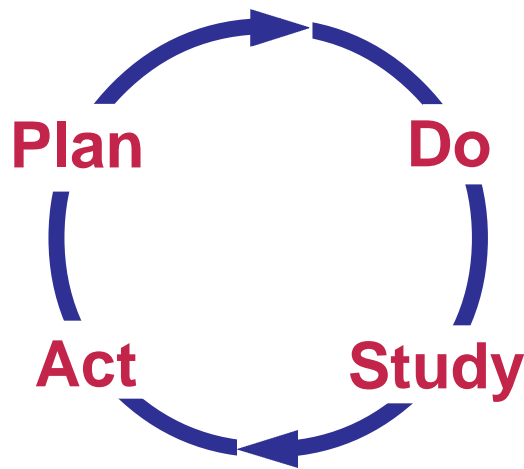
## Hierarchy of Primary Items

## Primary Documents with Links to Owners



*Each document is properly identified and owned.*

# Four-Step Project Management Cycle



Shewhart (or  
Deming) Cycle

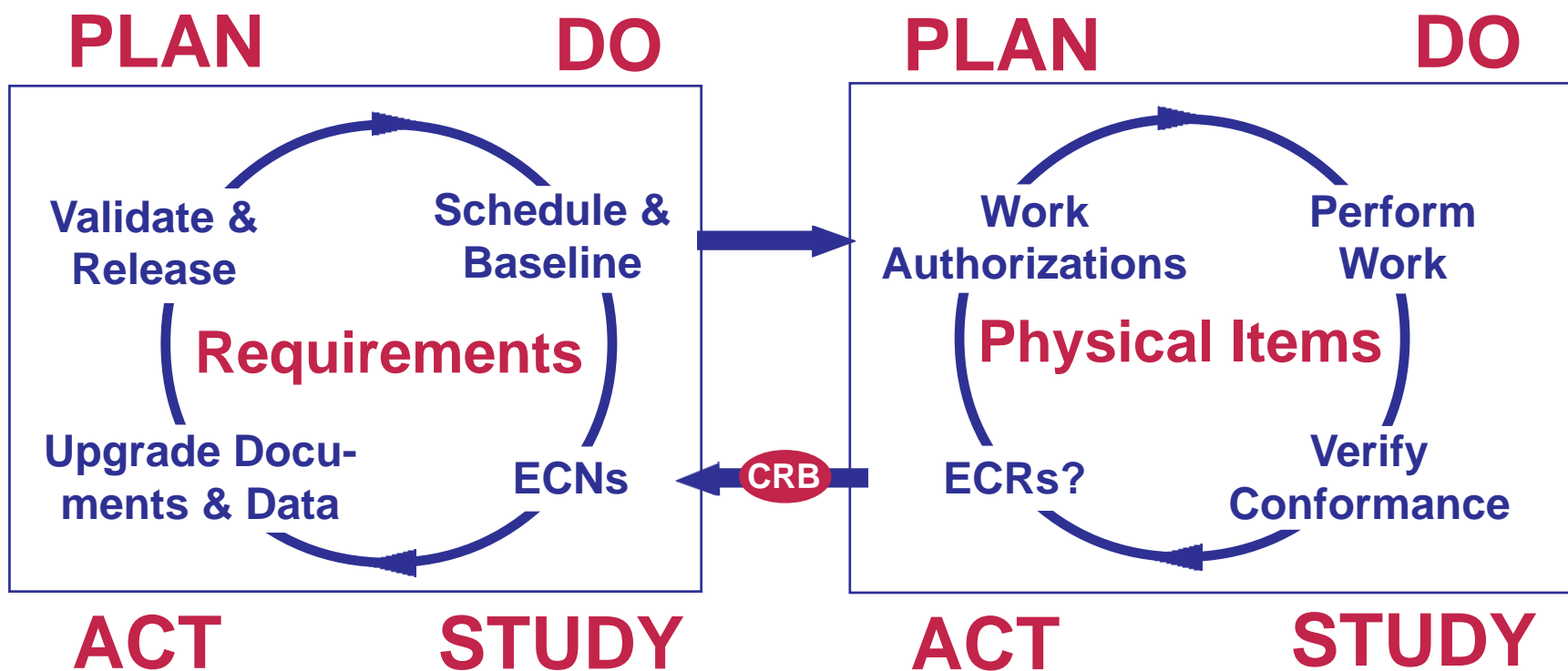
**Plan:** define the requirements

**Do:** achieve the requirements

**Study:** do results conform?  
Can results be improved?

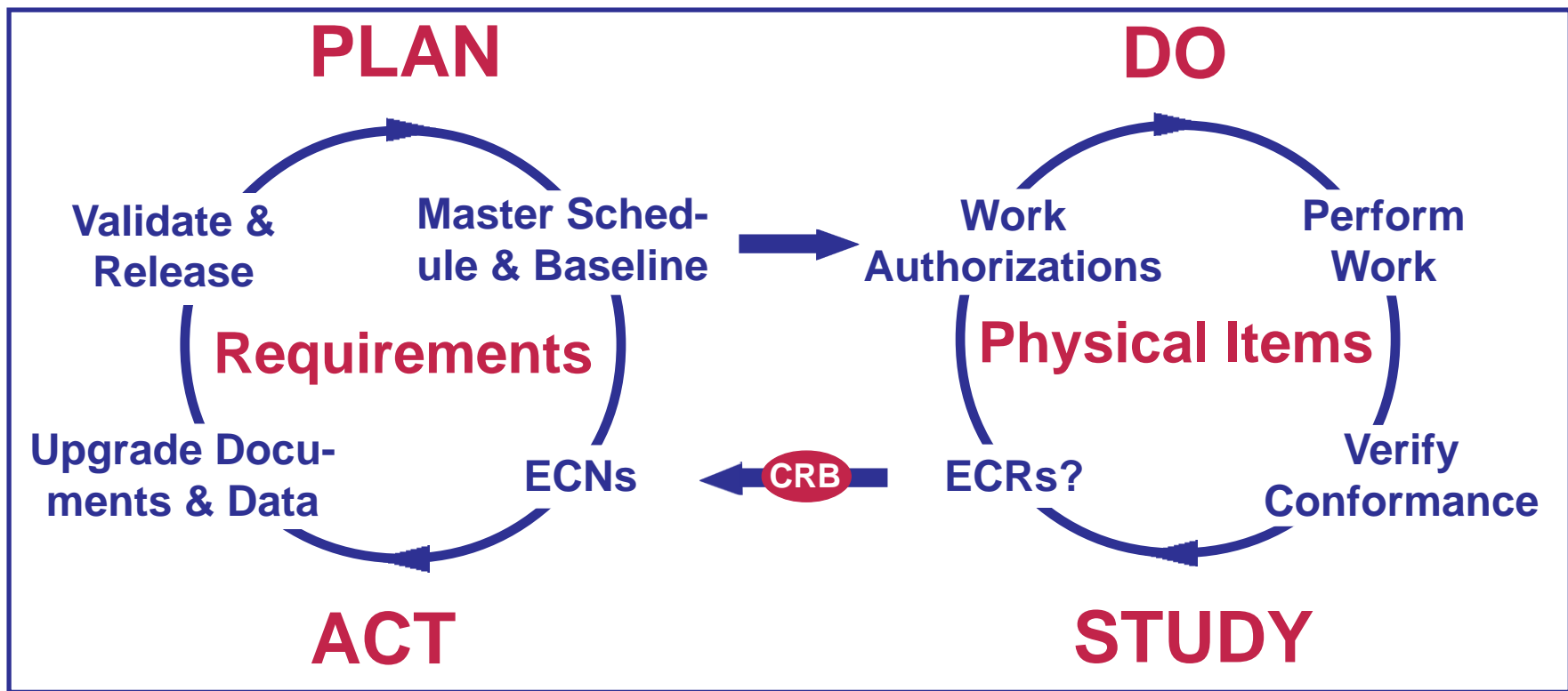
**Act:** Fix, improve and/or re-  
peat cycle as appropriate

# PM Cycle is Two Cycles, Not One



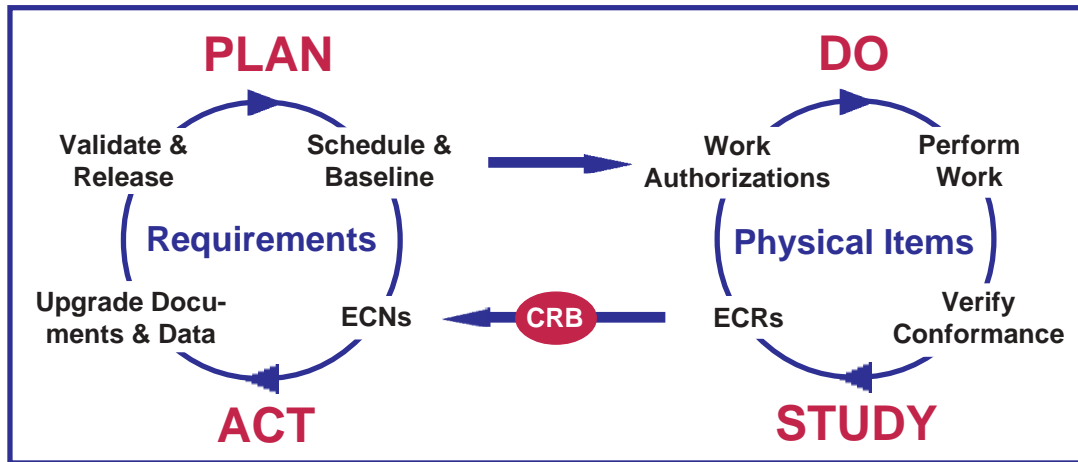
*Requirements cycle and a physical item cycle.*

# Two Cycles Synchronized as One



*Requirements must lead; physical items must conform.*

# The CMII Model



**Project Management, Product Life-Cycle, Asset Management**  
(planning and business decisions)

**Configuration Management**  
(business process infrastructure)

**Quality Assurance, Process Audits**  
(validation and verification)

*CMII Baseline*  
closely coupled with a  
*Closed-Loop and Fast-Track Change Process*  
with information sets in  
*Lowest Common Denominators*  
and each document co-owned by a  
*Creator and a Designated User*

*Requirements Management*  
*Change Management*  
*Release Management*  
*Data Management*  
*Records Management*

**(CM as Reinvented)**

# CM as Reinvented

# CM Process and Enabling Tools

