



The Institute of Configuration Management

Our mission is to help
our customers achieve
*consistent conformance and
continuous improvement.*

*We are best known for our
CMII/IPE model. CMII (CM2) is a
business methodology designed to
accommodate change and keep
requirements clear, concise and
valid — a prerequisite for achieving
**Integrated Process Excellence
(IPE).***

*IPE is achieved when all core
business processes are fully
integrated and automated and
resources being spent on
intervention to rescue quality and
schedule are approaching zero.*

Newsletter - January 2017

www.icmhq.com

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On the Horizon



Ray Wozny, announced as the new President of the Institute of Configuration Management.

Ray has over 23 years of experience in high technology firms with 19 in management. He has held various management positions and has implemented three PDM/PLM solutions.

Ray has extensive experience in configuration management, technical publications and design support. He received CMII certification in 1989 and joined ICM in 2003. He was on the ACDM's founding Board of Governors. Ray has PMI certification and is also a certified CM process lead assessor.

The new ICM headquarters will be located at 2870 N Speer Blvd, Suite 270 Denver, CO 80211



Joseph Anderson, announced as the Vice President of Services for the Institute of Configuration Management.

Joe has over 20 years of experience between Delphi and Rolls-Royce in the automotive, defense, marine, and aerospace sectors. He holds executive-level authority for implementing transformational service solutions to integrate the ICM global services organization, introduce enterprise agile methodologies, and shift paradigms to focus on customers and solution providers.

His organization will establish a global vision to align our company strategy and goals, while meeting customer needs. He is a Certified Six Sigma Black Belt and is CMII certified at the CMIIIP level.

CMII: THE PATH TO INTEGRATED PROCESS EXCELLENCE

PROCESSES DESIGNED TO ACCOMMODATE
CHANGE AND KEEP REQUIREMENTS
CLEAR, CONCISE AND VALID

We teach a streamlined version of traditional CM, called CMII. The need for a good CM process is universal. As a minimum, it must be able to accommodate change and keep requirements clear, concise and valid. This essential capability is outside the scope of traditional CM. It is where CMII excels.

Our CMII training and certification program was initiated in 1986. Over 8,377 CM professionals now hold our certification. Many came from organizations using traditional CM practices. Many paradigms had to be shifted before they could fully embrace the CMII principles. The needed shifts were accomplished in every case. Students have three options for taking our courses; (1) attend courses at a public site, (2) take the courses on-line or (3) have the courses brought on-site.

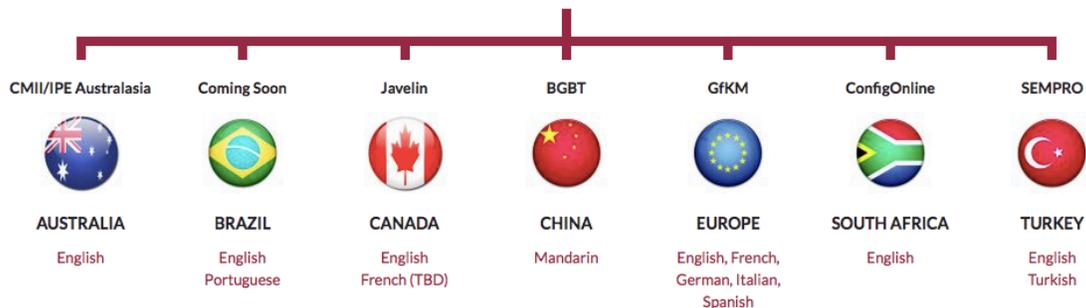
For information on course times, dates, and locations visit us at [Course Schedule](#)

INSTITUTE OF CONFIGURATION MANAGEMENT



WORLDWIDE

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Worldwide Training and Services

COURSES OFFERED IN 7 LANGUAGES

Ray's corner...



As we get ready to enter a new year we have many things to be thankful for at ICM and many exciting things planned for the future. ICM headquarters has recently moved to Denver, Colorado. We hired a new office manager, Susan LeCheminant and look forward to Susan bringing her expertise into our organization. As announced at our conference I took over the role as President. I have brought in Joseph Anderson, formally from Rolls-Royce, as the Vice President of the new ICM Global Services sector. ICM is growing and we look forward to sharing our strategic initiatives and future announcements in the near future. I have a great team, we have outstanding customers, and the future is very promising.

I am excited about the changes that are occurring at ICM. In this newsletter, you will read more details about many of them but here are a few highlights:

- Formed a new Services organization led by Joseph Anderson to assist companies with their business transformation needs.
- Added new partners in China, Turkey, and Canada thus, strengthening our global presence.
- Released a new CMII Toolbox that provides a wealth of information to support CMII grads.
- Continued enhancements to our current course offerings plus the introduction of new courses in 2017, both in the classroom and online.

These are a few of many changes that I hope will not only provide you with additional educational opportunities but will also help your organizations in achieving Integrated Process Excellence. As always we ask for your feedback and look forward to working with all of you in the near future.

Wishing you a successful 2017,
Ray Wozny
ray@icmhq.com

Words from Ken



Why Do I Need a CN Implementation Plan?

Some organizations attempt to manage the implementation of changes without going through the discipline of creating specific detailed implementation plans. I have been asked: “Why do I need a CN implementation plan?” on more than one occasion, so I thought I would pass along these reminders.

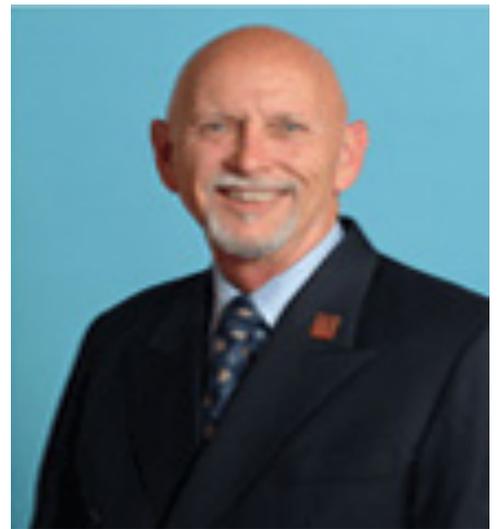
Why do you need a CN implementation plan...

If implementation activity performance is of no interest to you...then you don't. If long-term resource planning is not important to you...then you don't. If enabling valid change implementation task commitments doesn't appeal to you...then you don't. If creating visibility of the implementation status of changes isn't compelling to you...then you don't. If successfully achieving each committed change effectivity is an insignificant event to you...then you don't. If managing the implementation of concurrent changes is irrelevant to you...then you don't. If managing near-term resource allocation and expenditure is not a concern to you...then you don't. Do you need a CN implementation plan...I say yes...you decide!

Wishing you a successful 2017,

Ken Black

ken@icmhq.com



Institute of Configuration Management

How CMII Achieves the Requirements of the ANSI/EIA-649B *Standard for CM*

The consensus standard and guides for configuration management include:

ANSI/EIA-649B Standard for Configuration Management

GEIA-HD-649 Implementation Guide for Configuration Management

MIL-HDBK-61B (Draft) Configuration Management Guidance

ISO 10007 Quality Management - Guidance for Configuration Management

The first is the standard for configuration management and the other three are implementation guides. All four describe the CM process in terms of the same five functions. The CM standard identifies 36 underlying principles that support the five functions. This white paper describes how the CMII model fulfills the requirements of the CM standard and why it is the most robust solution.

**White Paper
CMII-905A**



Revision Record

| | | | |
|---------------------------------------|---------------------|----------|--|
| | <i>Revision</i> | A | |
| | <i>Released By</i> | WWG | |
| | <i>Release Date</i> | 11/30/16 | |
| | <i>Authority</i> | 0072-905 | |
| | <i>Fast-track</i> | no | |
| | <i>Rev History</i> | n/a | |
| Cover Page and Purpose | A | | |
| Revision Record | A | | |
| Table of Contents | A | | |
| ANSI/EIA-649B: Standard for CM | A | | |
| The 5 Functions of CM | A | | |
| 36 Principles Support the 5 Functions | A | | |
| CM Implementation Guides | A | | |
| Product Structure and Linkages | A | | |
| Configuration Status Accounting | A | | |
| Evolution of Configuration Baselines | A | | |
| Baseline Content and Format | A | | |
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Released: November 30, 2016

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ANSI/EIA-649B: Standard for Configuration Management

ANSI/EIA-649B provides a flexible and comprehensive methodology for enterprises to manage and control product configuration. It consists of five interrelated functions which, when collectively applied, ***maintain consistency between product configuration information and the product*** throughout conception, development, production, delivery and support.

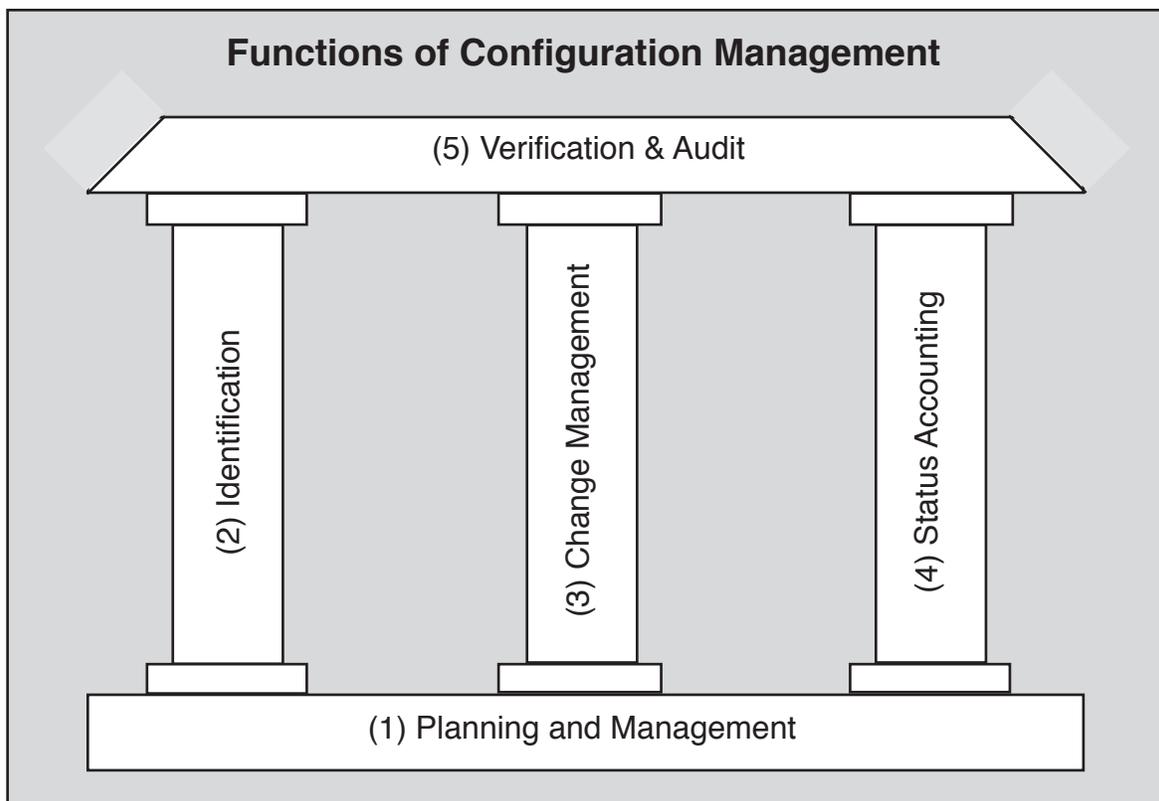
Configuration management implementation requires a balanced and continuous application of CM functions and their underlying principles throughout the product lifecycle.

The 5 Functions of CM per ANSI/EIA-649B

The CM process is comprised of five functions; (1) CM planning and management, (2) configuration identification, (3) configuration change management, (4) configuration status accounting and (5) configuration audit and verification, as illustrated below.

This standard is not written as a requirements document, per se, but as the foundation document upon which requirements may be structured and/or tailored.

GEIA-HB-649, MIL-HDBK-61 and ISO 10007 provide additional "how-to" guidance for planning, managing and implementing CM, as described herein.



36 Principles that Support the 5 CM Functions per ANSI/EIA-649B

CM Planning

- 1 To apply CM, it is necessary to understand the product context and environment.
- 2 The plan for applying CM must be documented to provide consistency.
- 3 To apply CM requires adequate resources and assigned responsibilities.
- 4 CM procedures describe how to achieve the intent of the CM plan.
- 5 CM training is required to perform the CM tasks properly.
- 6 The CM process must be assessed periodically to maintain its effectiveness.
- 7 CM is responsible for the CM performance of suppliers and contractors.
- 8 CM is responsible for how information is collected, processed and controlled.

Configuration Identification

- 9 Identification is the basis for how products are defined, labeled and changed.
- 10 Configuration information serves as the basis for all product lifecycle phases.
- 11 Enterprise identifiers are used to define the designer or manufacturer.
- 12 Product identifiers identify products, their sources and their documentation.
- 13 Products are serialized when it is necessary to distinguish one from the other.
- 14 When a product is modified, it retains its original serial number.
- 15 Group numbers are used to identify like-families of end-item products.
- 16 Product information is identified and linked to associated physical items.
- 17 A product structure is used to define the parent-child relationships of parts.
- 18 Products that require special CM attention are referred to as configuration items.
- 19 A baseline represents the attributes of a product at a point in time.
- 20 The current baseline of a product is its documentation plus approved changes.
- 21 Interfaces between products are documented and included in their baselines.

Configuration Change Management

- 22 Product changes are made using a systematic, measurable change process.
- 23 Changes must be justified to warrant the implementation resources if approved.
- 24 A unique identifier is assigned to each change request to enable tracking.
- 25 Change requests are classified to identify the proper level of review.
- 26 Change requests must be clear in terms of technical, cost and schedule content.
- 27 Change request evaluations must include consideration of all potential impacts.
- 28 Change requests must be approved by the proper authority.
- 29 The authority that approves a change also assigns its implementation priority.
- 30 A variance form is used to define and accept a nonconforming condition.

Configuration Status Accounting

- 31 CSA provides a way to maintain the status of a product and its information.
- 32 Information about the product is captured as CM tasks are performed.
- 33 Metrics derived from CSA are used to improve CM process effectiveness.

Configuration Verification and Audit

- 34 Products are audited to verify that they conform to their documented requirements.
- 35 Changes are verified to ensure consistency between products and supporting information.
- 36 Audits are a means to establish baselines at key points in the product lifecycle.

CM Implementation Guides

GEIA-HB-649 *Implementation Guide for CM* — 141 Pages

- 1 Introduction
- 2 Scope
- 3 Definitions
- 4 Symbols and Abbreviations
- 5 Functions and Principles
 - 5.1 Configuration Management Planning and Management
 - 5.2 Configuration Identification
 - 5.3 Configuration Change Management
 - 5.4 Configuration Status Accounting
 - 5.5 Configuration Verification and Audit
- Annexes 1 - 5
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MIL-HDBK-61B (Draft) *CM Guidance* — 209 Pages

Very similar to GEIA-HB-649 but includes more examples

ISO 10007 *Quality Management — Guidance for CM* — 10 Pages

- 1 Scope
- 2 Normative Reference
- 3 Definitions
- 4 Configuration Management System, Description and Objectives
- 5 Configuration Management Process
 - .2 CONFIGURATION IDENTIFICATION
 - .3 CONFIGURATION (CHANGE) CONTROL
 - .4 CONFIGURATION STATUS ACCOUNTING
 - .5 CONFIGURATION AUDIT
- 6 Organization of Configuration Management
- 7 Configuration Management Procedures
 - .2 Configuration Identification Procedures
 - .3 Configuration Board
 - .4 Configuration Control Procedure
 - .5 Configuration Status Accounting Procedures
 - .6 Configuration Audit Procedures
 - .7 Configuration Management Plan
- 8 Configuration Management System Audit

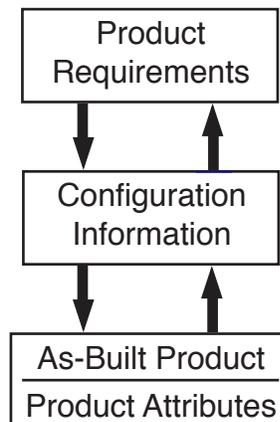
Product Structure and Item-to-Document Linkages

Relationships and Linkages per ANSI/EIA-649B

The CM process serves to maintain consistency between product requirements, configuration information and product attributes.

#20 *The current baseline of a product is its documentation plus approved changes*

#34 *Products are audited to verify that they conform to their documented requirements*

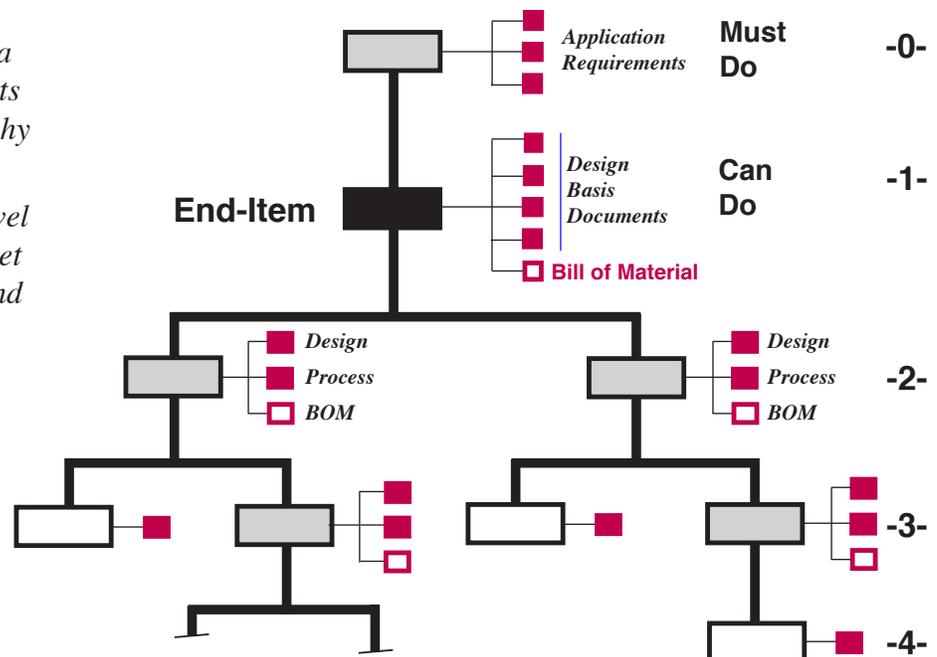


Product Structure and Linkages per CMII

Application requirements reside at Level 0 and represent what the product MUST DO. The design basis resides at Level 1 and represents what the product CAN DO.

The framework for a product baseline is its physical item hierarchy

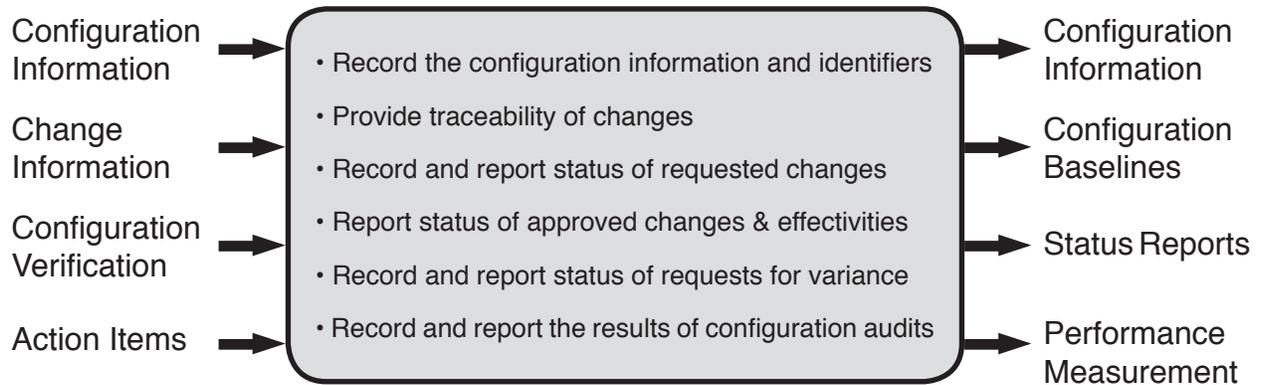
Each item at each level is linked to its own set of design, process and BOM documents



Configuration Status Accounting

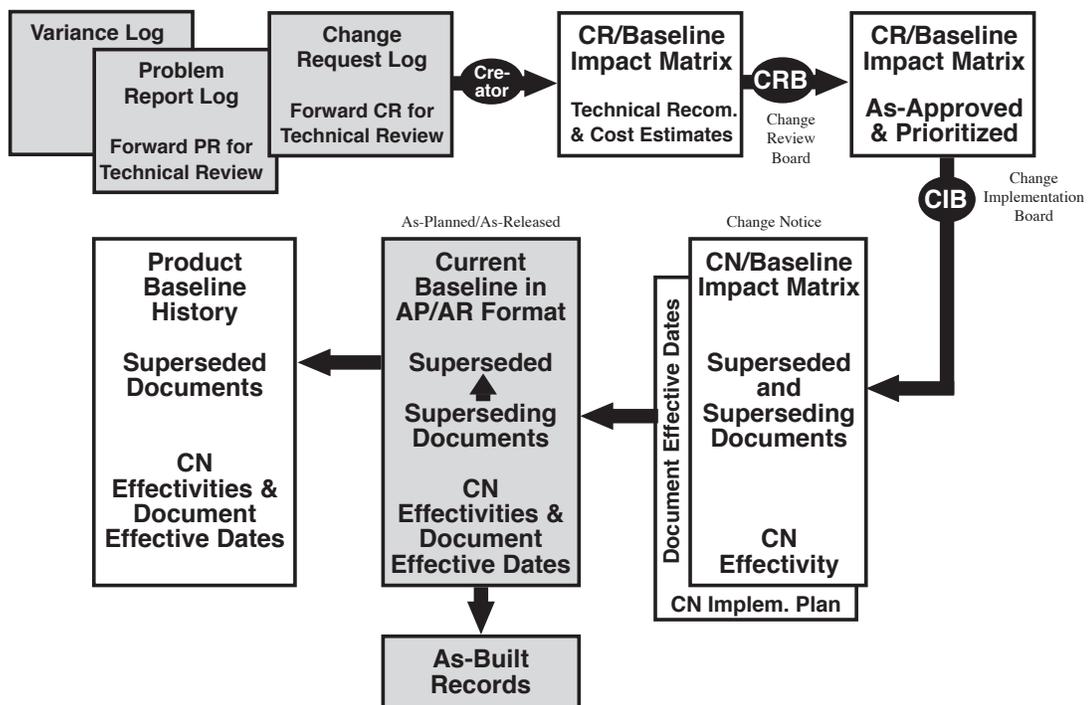
Configuration Status Accounting Tasks per ANSI/EIA-649B

Configuration status accounting ensures that the complete collection of product configuration information is organized, indexed and readily available.



Configuration Status Accounting and Work Flow per CMII

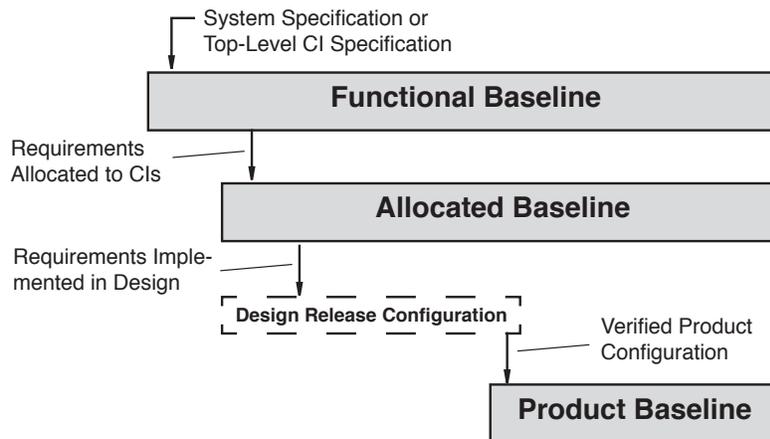
Status accounting information is derived from baselines, change logs and build records.



Evolution Sequence of Configuration Baselines

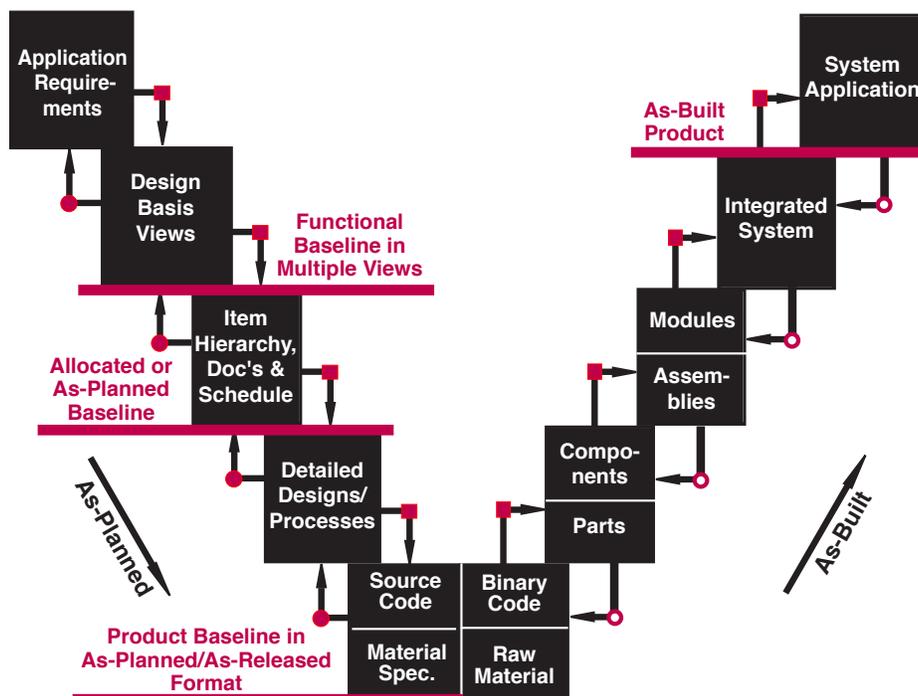
Evolving Configuration Baselines per ANSI/EIA-649B

An allocated baseline is comprised of separately developed modules or configuration items.



Evolving Configuration Baselines per CMII

The functional baseline is comprised of all design basis views which include functional specifications, system schematics, a 3-D model and multiple process views.



Configuration Baseline Content and Format

Baseline Hierarchy and Content per GEIA-HD-649

The product baseline shown in the shaded area was excluded from this -649 example.

General Configuration Baseline Hierarchy

| Baseline Name | Baseline Definition | Baseline Content | When Created |
|---------------------|--|--|----------------------|
| Functional Baseline | Top-Level Performance Umbrella requirements providing basis for development of systems, lower level products, assessing top-level performance and interface impacts of changes. | <ul style="list-style-type: none"> Overall product purpose Major product capabilities Major interfaces Support and user skill constraints Regulatory constraints | Conception Phase |
| Allocated Baseline | Component-Level Performance Basis for development, test and audit of individual products, assessing component-level performance and impact of proposed changes on interfaces. | <ul style="list-style-type: none"> Detailed performance Required interfaces Safety and mandatory verifications Functionality description Test specification | Definition Phase |
| Design Baseline | Component-Level Design Basis for building and accepting manufactured units and assessing design impacts of changes. | <ul style="list-style-type: none"> Detailed design information <ul style="list-style-type: none"> - drawings - digital graphics files - acceptance criteria | Design Phase |
| Product Baseline | Production Ready | <ul style="list-style-type: none"> Manufacturing processes | Design & Build Phase |

Baseline Content and Format per CMII

CMII baselines are provided in an as-planned/as-released format which fully define the current configuration and include visibility of planned changes and their effectivities.

| PRODUCT BASELINE | | | | | | | | | | | | |
|-----------------------|---------|----------|-----|-------------------------|--------|---------------------|-----------|-----------|---------------|-----|--------------|-----|
| End-Item ID No. _____ | | | | | | Date/Time ____/____ | | | | | | |
| Physical Items | | | | Documented Requirements | | | | | Planned Ch'gs | | | |
| Hierarchy | Item ID | Item | Qty | Type | Number | Rev | Rel. Date | Eff. Date | CN | A/D | Effec-tivity | CN |
| 0 1 2 3 4 5 | Number | Name | | | | | | | | | | |
| • | NNNN | XXXXXX | | TT | NNNN | R | DMY | | --- | | | |
| • | 9876 | End-Item | 1 | TT | NNNN | R | DMY | DMY | NNN | | | |
| | | | | TT | NNNN | R | DMY | DMY | NNN | | | |
| | | | | TT | NNNN | R | DMY | DMY | NNN | | | |
| | | | | BM | 9876 | A | DMY | DMY | NNN | D | DMY | NNN |
| | | | | BM | 9876 | B | DMY | DMY | | A | DMY | NNN |
| • | 1234 | Bolt | 4 | DD | 1234 | A | DMY | DMY | NNN | D | | NNN |
| • | 2345 | Bolt | 4 | DD | 2345 | A | DMY | DMY | | A | | NNN |

The Missing Link: Bills of Material

From the 1960s to about 1998, military standards were the only source for CM requirements and implementation how-tos. Product structures were defined with specification trees, drawing trees, parts lists and/or work breakdown structures, not bills of material.

Scheduling tools such as MRP/ERP, introduced in the 1970s, have a very robust bill of material module. PLM tools, as introduced in 2000, also have a robust BOM module. Manufacturing engineers are very proficient at using bills of material to create product structures/physical item hierarchies. Such hierarchies are used in the CMII model as the framework for product baselines. They are structured to support the supply chain.

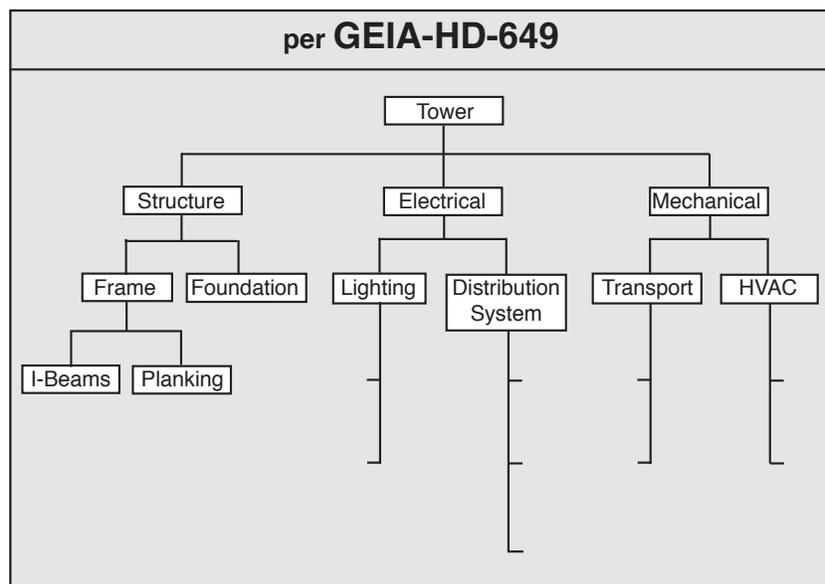
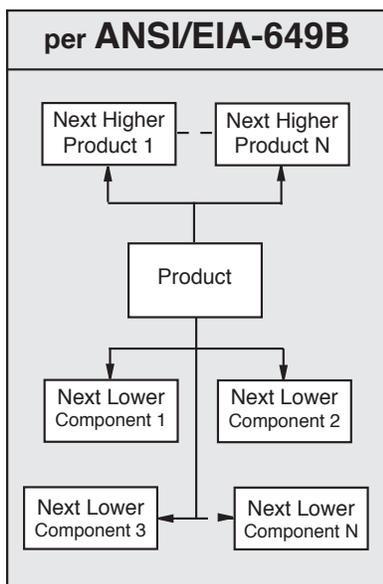
Bills of Material in the CM Standard and Implementation Guides

The "bill of material" term appears in ANSI/EIA-649B as an alias for product structure on page 9 and appears again under Product Structure on page 25 in Section 5.2.3. It includes the diagram shown below on the left. The term is not used in ISO 10007.

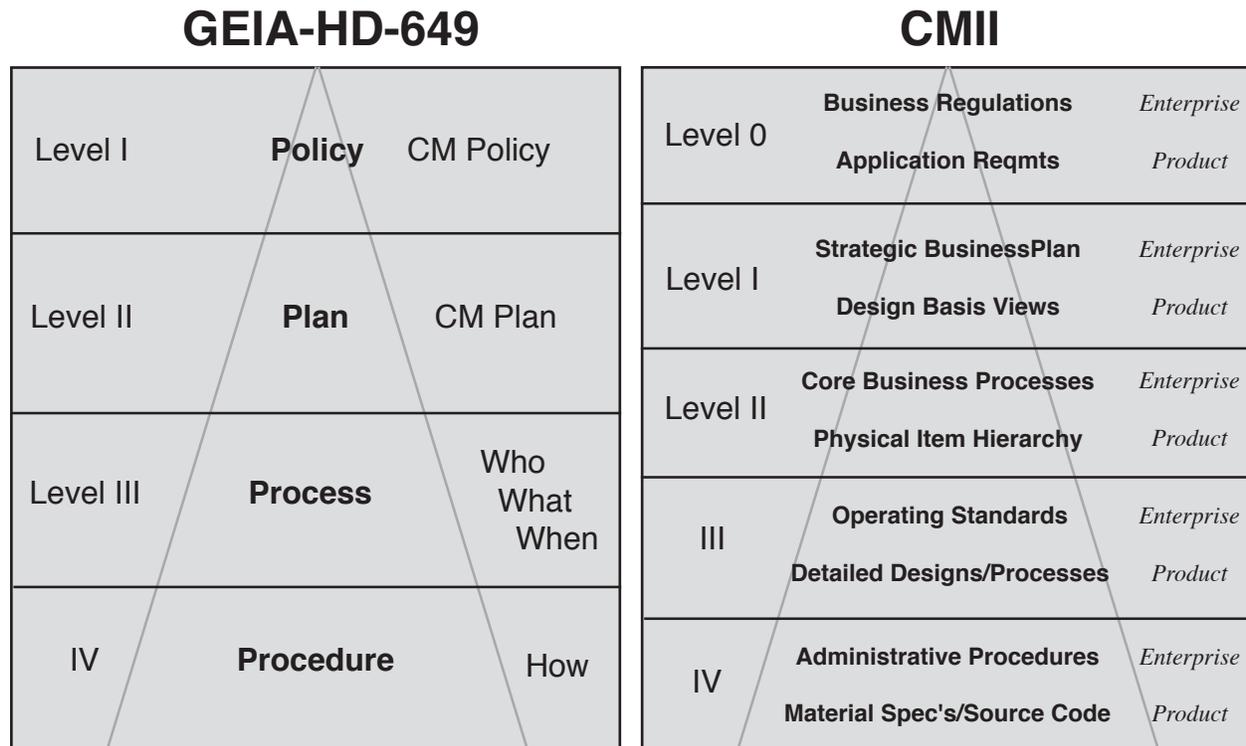
The "bill of material" term appears only once in GEIA-HB-649 and once in MIL-HDBK-61B (draft), but there is no accompanying information. GEIA-HB-649 uses "product structure" as the title for Section 5.2.2 and includes the diagram shown below on the right.

These examples are not compliant with the CMII model. They do not provide the appropriate framework for a product baseline. They are not appropriate for driving the supply chain. A properly structured bill of material, as used in the CMII model, is shown on page 7.

Examples of Product Structures

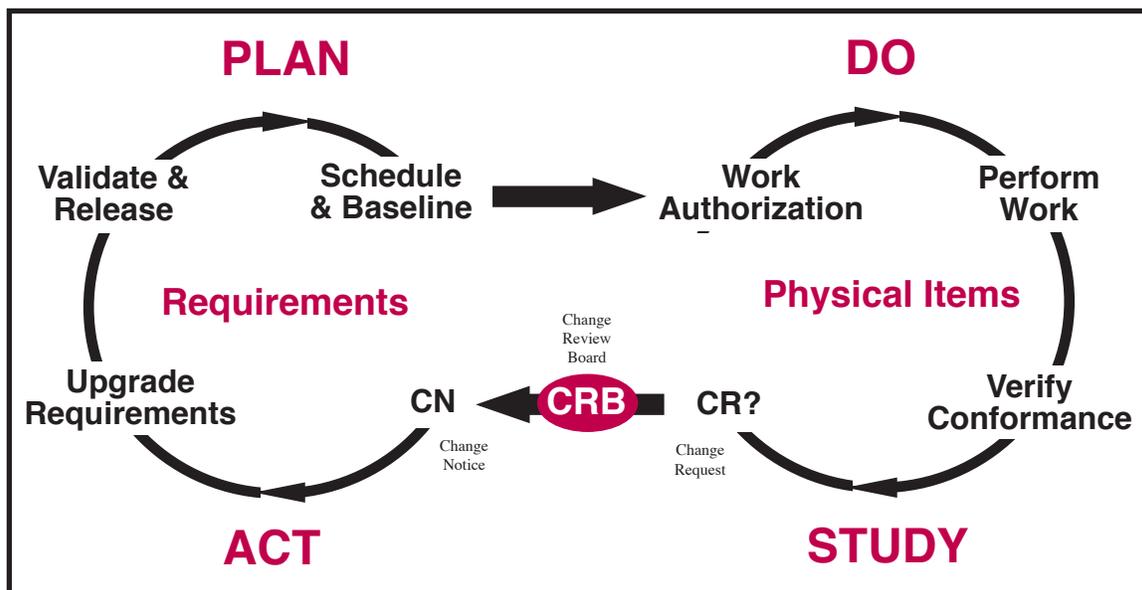


Sample Document Hierarchies per GEIA-HD-649 Versus CMII



Project Planning Cycle (Plan, Do, Study and Act) per CMII

CMII goal: Consistent conformance and continuous improvement.



Assessing Your CM Process, Its Effectiveness and Value

ANSI/EIA-649B Foreward: "When effectively applied, CM provides a positive impact on product lifecycle cost." There are no statistics on what the impact really is.

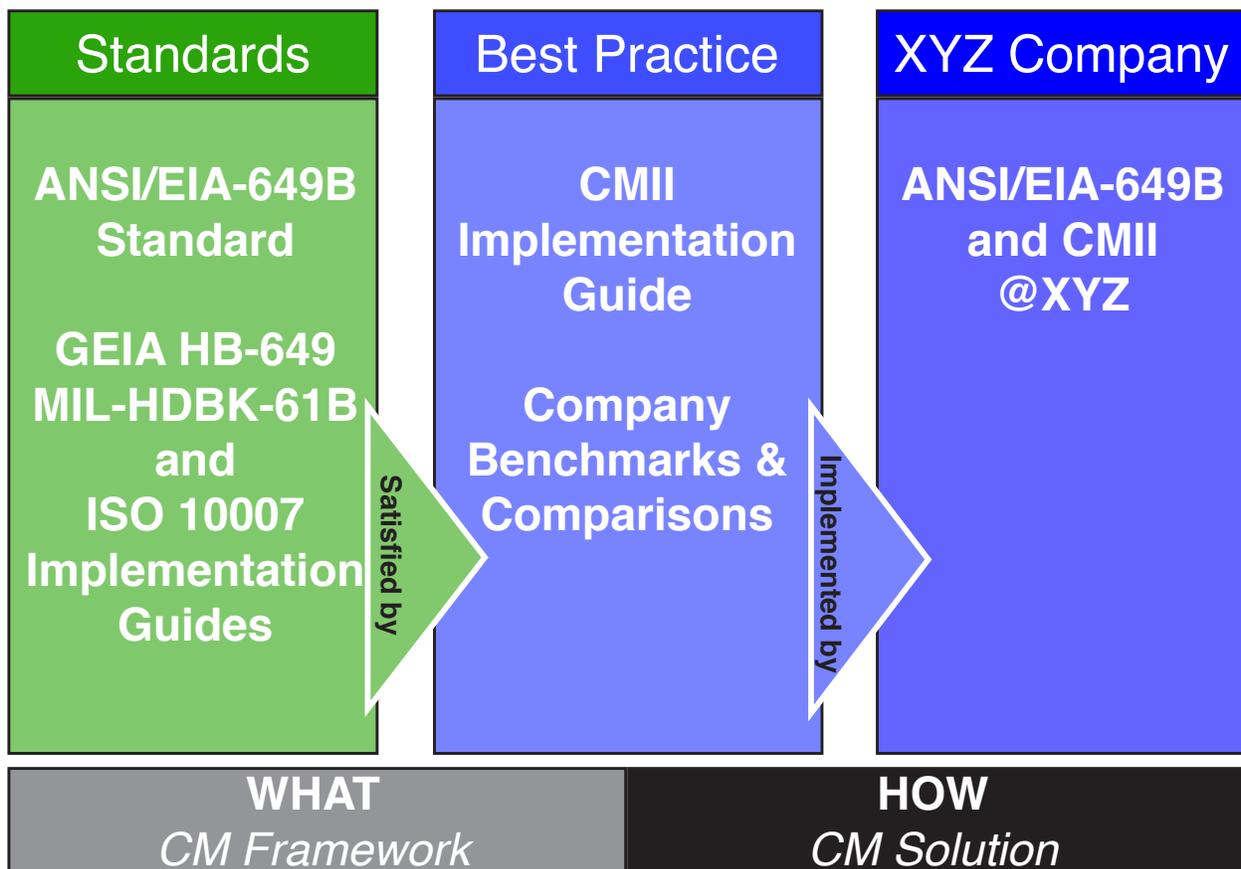
This white paper has highlighted areas in the CM standard and implementation guides that are cumbersome and inefficient. Significant improvements are readily available. It is simply a matter of replacing the CM implementation guides with the CMII model

Consensus versus Defacto Standards: Use the Best of Both

ANSI/EIA-649, GEIA-HB-649, MIL-HDBK-61B and ISO 10007 are consensus standards that replaced the military CM standards. They contain many of the same deficiencies.

The CMII Model for CM is a defacto standard — something used so widely that it is considered a standard although it was not written by a sanctioned standards group.

The recommended solution is to use the best of both. Use ANSI/EIA-649B as the CM requirement. Use the CMII defacto standard as the implementation guide.





ICM Global Services

The ICM Services sector is focused on providing each contracted enterprise, regardless of scale or complexity, the capabilities and industry experience needed to deliver tangible business results. We provide the necessary assistance for achieving transformational change with phased KPI initiatives, with a focus on lean transactional improvements. Our industry experts work directly with each organization to define and create a tailored plan that utilizes a phased approach to implementing the desired business changes while adhering to the CMII® principles. For more information on our programs and future initiatives please visit us as [ICM Global Services](http://www.icmglobal.com) or contact us at services@icmhq.com.

ICM Service Offerings

- Business Intelligence & Performance Management
- Business Process Assessment and Transformation
- Business Summits and Facilitation
- CMII Advisement for Configuration and Change Management
- [CMII 5 Star Certification](#) for ELM, PLM, CLM, ERP, MES
 - Process Workflows
 - Business Requirements, Functional Requirements, Functional Design Specifications
 - Project Schedules, Resource plans
 - Solution Architecture Documents, Information Assurance Documents
- [Cost to Equate Change – C2Eq®](#)
- [Model Based Enterprise – MBEE®](#)

Looking forward to a transformational 2017,

A handwritten signature in black ink, appearing to be 'Joseph', written over a white background.

joseph@icmhq.com





IPE/CMII Global Congress

To inspire, connect, mentor, and support CMII certified professionals in the successful implementation of CMII and achieving integrate process excellence.

At the 2015 CMII symposium CMIIIP CM Leaders from Aviation, Automotive, Healthcare, Energy, Consumer Products and Technology came together to create a cross functional CM industry forum to benchmark CM best practices and provide a resource to the CMII community.

Mission Statement

To advance and promote the successful implementation of Integrated Process Excellence (IPE) and CMII throughout all industries worldwide.

Charter

To inspire, connect, mentor and support CMII certified professionals in the successful implementation of CMII and achieving Integrated Process Excellence.

IPE/CMII Tool Box

This Tool set has been created by the IPE/CMII Global Congress in partnership with ICM to provide the definitive IPE/CMII benchmarking resource for all CMII-C & above certified CM Leaders.



Leadership Pitches



1 Hr Overview



CM Horror Stories



Interview Questions



Congress Focal List



Job Descriptions



Change Approval Matrix



PLM Screen Shots



Symposium Pitches



Re-identification



Fast Track/Full Track



CMII Process Flows

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